Sapphire VIII stereo tape player with all-transistor radio

MANUAL 68P43101A13

VOLKSWAGEN
A7MV SERIES

MOTOROLA

service manual

GENERAL INFORMATION

These 12 volt models are designed for custom installation in the following vehicles:

Model A7MVF - Volkswagen Fastback

Model A7MVG - Karmann-Ghia

Model A7MVS - Volkswagen Squareback

Model A7MVT - Volkswagen Transporter

Model A7MVW - Volkswagen Sedan

SERVICE STATION PROCEDURE

1. A defective in-guarantee tape/radio unit must be accompanied by the Customer's Guarantee Policy Tag. This tag must be properly filled in by the Volkswagen dealer at the time of the unit purchase. Accept as guarantee repairs only those units within the 1 year or 12,000 miles (whichever occurs first) guarantee period. The removal or re-installation of this unit is customarily performed by the Volkswagen dealer and is not covered by this guarantee. Also, the removal of motor noise, tire static, electrical interference, faulty installations and aerial repairs are not considered as guarantee repairs and, therefore, expenses related to such services should be handled by the car dealer.

2. Fill in Motorola Guarantee Labor Claim, Part Number 68P6016A30, and mail Green and Pink copies to:

Motorola Guarantee Service
Motorola Automotive Products, Inc.
9401 West Grand Avenue
Franklin Park, Illinois.

3. The yellow copy of the Motorola Guarantee Labor Claim is to be retained by the authorized service station for his files.

4. Defective parts for guarantee repairs made on this model are to be sent to your Motorola Distributor for free replacement supported with the defective parts return tag which you are now using.

5. Only those service shops authorized by their Motorola Distributor can perform guarantee repairs on a no-charge basis to the customer. If you are not already authorized as a Motorola Service Station and you are interested in handling this service, please contact your Motorola Distributor for complete details.

OPERATING INSTRUCTIONS

OPERATION

TO PLAY TAPES - Turn unit on by rotating the on-off and volume control to the right. Select a tape cartridge and insert it - label side up and open end first - into the tape slot. Push the cartridge in until it is firmly seated. (THIS IS IMPORTANT.) The tape cartridge will now play, in succession, all four channels. Adjust volume, tone and balance as required.

NOTE: Inserting tape cartridge into slot automatically switches this unit from AM radio operation to tape operation.

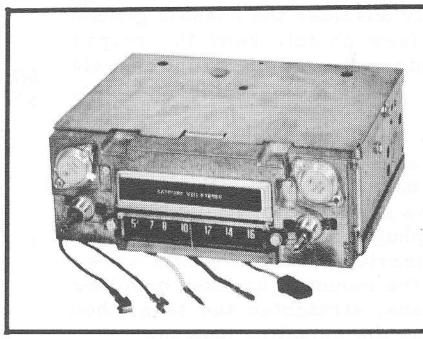
TO OPERATE AM RADIO - Tape cartridge must be pulled out completely or at least 1" from its seated position before radio will operate. Turn unit on by rotating the on-off and volume control to the right. Tune in desired station with the smaller knob located to the right of the tape slot. Adjust volume, tone and balance as required.

NOTE: When the tape cartridge is removed from the tape slot, the unit automatically switches from tape operation to AM radio operation.

CAUTION: The tape cartridge should always be pulled out completely or approximately 1" from the seated (play) position before leaving car or turning unit off.

TAPE CARTRIDGE CARE

To assure maximum life and noise free operation, tapes should be stored in a cool, clean and dry place, out of the rays of the sun and with the open (tape) end down.



SERVICE NOTES

GENERAL SERVICE NOTES

1. POLARITY - WHEN SERVICING THIS UNIT, THE "A" LEAD MUST BE CONNECTED TO THE POSITIVE SIDE OF POWER SOURCE. IF CONNECTED OTHERWISE, RECEIVER WILL NOT OPERATE AND DAMAGE TO COMPONENTS MAY RESULT.

2. POWER SUPPLY REQUIREMENTS - It is preferable to use a storage battery (without a battery charger) in place of a battery eliminator. If a battery eliminator is used, it must be well filtered and regulated.

3. OUTPUT LOAD - Always operate this receiver with an output load across each of the two channels; either 8 ohm speakers or 8 ohm, 5 watt resistive loads can be used.

4. TRANSISTOR REPLACEMENT - When replacing a transistor other than a power or regulator transistor, grasp the transistor leads between transistor body and plated chassis board with a pair of long nose pliers to prevent excessive heating of transistor body during soldering operation.

5. POWER AND REGULATOR TRANSISTOR REPLACEMENT - When replacing a power or regulator transistor, be sure to:

A. Use the transistor specified in the Replacement Parts List.

Sapphire VIII stereo tape player with all-transistor radio MANUAL 68P43101A13 VOLKSWAGEN A7MV SERIES

B. Coat both sides of transistor insulator with DC-4 grease (Motorola Part No. 11M490487) to insure proper heat dissipation.

C. Securely and evenly tighten the transistor mounting screws.

6. GAINING ACCESS TO THE PLATED BOARDS - Remove top and bottom covers and refer to photo.

Tape Pre-Amp Plated Board - To remove this board for servicing, merely unsolder the chassis ground lead (see photo), bend the copper retaining clip and lift up the chassis to a more serviceable position.

Audio Amplifier Plated Board - To gain access to the bottom side of this board, remove the two (2) screws at the front side of the radio (see photo). To remove the board for servicing, remove the screw from the mounting bracket, unsolder the tabs, straighten the tabs, then remove the mounting bracket.

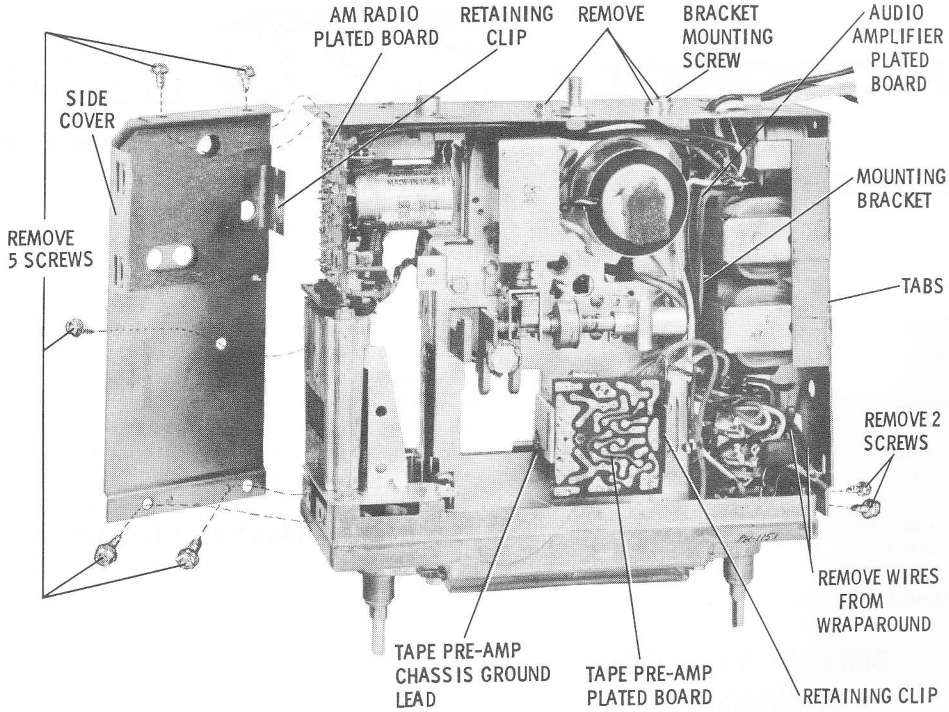
AM Radio Plated Board - To service this board, remove the 5 side cover mounting screws, bend the copper retaining clip so that the side cover can be removed from this board.

7. OUTPUT TRANSFORMER AND FILTER CHOKE REPLACEMENT - Remove 5 screws, 2 at front and 3 at rear (see photo); also remove ground leads from control and pull out wraparound far enough so that transformer or filter choke can be removed.

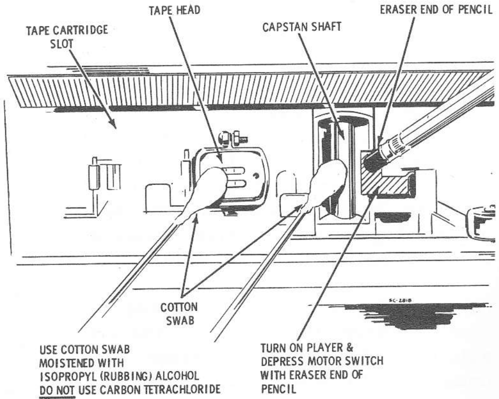
8. TAPE CARTRIDGES - Before servicing the tape player portion of this unit, always check for the possibility of a defective pre-recorded tape cartridge, particularily if one is returned with the unit. This should be done by substituting the tape cartridge with one that is known to be good.

9. TAPE HEAD AND CAPSTAN CLEANING - One major cause of improper tape player operation is oxide build-up on the head and capstan. During normal operation, some iron oxide particles are loosened from the tape and build up. This accumulation of oxide can cause poor playback and up and down tape travel. The head and capstan should be cleaned whenever the unit is serviced and this can be done either in the car or on the service bench. To clean the head and capstan, use a cotton swab moistened with head cleaner or isopropyl alcohol, then wipe dry.

(CAUTION should be exercised when cleaning playback head to prevent getting cleaner on any plastic parts.)



GAINING ACCESS TO PLATED BOARDS, FILTER CHOKE AND OUTPUT TRANSFORMERS



TAPE HEAD & CAPSTAN CLEANING

10. HEAD DEMAGNETIZING - Do not use magnetized screwdrivers and wrenches near the head since these can magnetize the head. The head may also, after a long period of time, acquire some residual magnetism. A head that is magnetized will show a definite loss of high frequency response and an increase in noise level. Use a commercially available head demagnetizer, following instructions included with the unit to demagnetize the head.

11. HEAD REPLACEMENT - The location of the tape head with respect to its mounting bracket is very critical; for this reason, replacement heads are supplied already secured to their mounting bracket and positioned correctly at the factory. When replacing a head, remember to replace it as an assembly, that is, remove the defective head and bracket and replace it with the new head and bracket assembly.

If for some reason the location of the head has changed (due to a loose mounting screw, etc.), position it as shown in "Head Positioning Adjustment".

ADJUSTMENTS

Head adjustments are normally required for cases of cross-talk, loss or noisy frequency response or if the head has been replaced.

A suitable test tape should be used for the azimuth and height adjustments. Motorola has a suitable test tape cartridge available for the field under Part Number 99P43309A01. Instructions, in the form of a label on the cartridge, are included.

Connect 8 ohm loads (either speakers or resistors) across the output of both channels and set tone control to treble (maximum clockwise). Use an oscilloscope or AC output meter and a 1/16" Allen wrench for azimuth and height adjustments (Motorola Part Number 66P40059A32).

HEIGHT

This is an adjustment to move the tape head up or down so that it can be positioned exactly in line with the pre-recorded information on the tape. Misadjustment of this screw would cause cross-talk and/or poor separation.

With the Motorola test tape, proceed as follows:

1. Remove top cover and make sure output loads are connected across each channel.

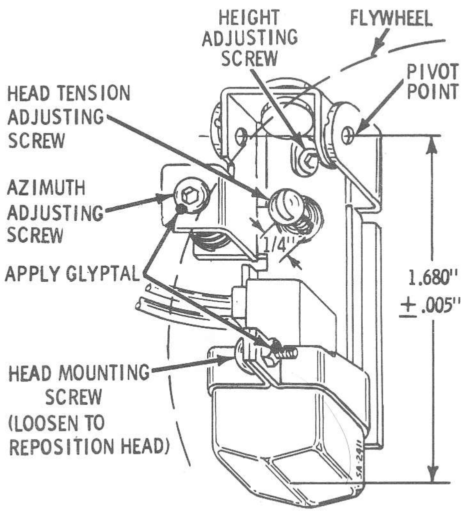
2. Insert test tape cartridge into tape slot and position head to tracks #2 and #6.

3. Set balance control for maximum output from left channel.

4. Connect scope (or VTVM) across left channel output - (track #2 information - 1Kc will be presented). Adjust height adjusting screw for a null. The reason for the null is that the 1Kc information is recorded not on track #2 but on the guard bands adjacent to track #2. This adjustment will minimize cross-talk.

5. Azimuth - Connect scope or VTVM across the output of the right channel and adjust balance control for maximum right channel output - (track #6 information - 8Kc will be presented). Adjust azimuth adjusting screw for maximum output.

Misadjustment of this screw would cause poor high frequency response.



HEAD ADJUSTMENTS

6. Repeat Steps #4 and #5 to optimize these adjustments, then cement adjusting screws in place with glyptal (Motorola Part Number 11P40059A53) or other non-hardening cement.

NOTE: Before cementing, index head 4 times and recheck for null; optimize the adjustment.

The next two adjustments are not normally required except when the head has been replaced or tampered with.

HEAD TENSION ADJUSTMENT

This adjustment will have to be made if the head assembly has been replaced. Adjust the screw so that there is 1/4" between the bottom flat of the screw head and the head mounting bracket with head in its lowest position (tracks #4 and #8). Apply glyptal to the screw from the bottom.

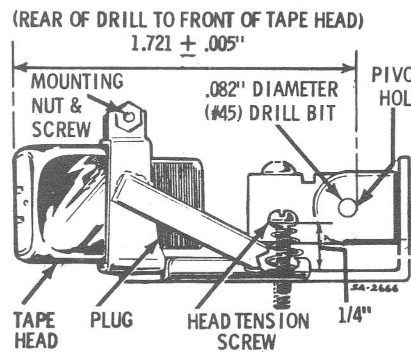
HEAD POSITIONING ADJUSTMENT

Not normally required unless tampering has occurred or if mounting screw has loosened.

The head should be set to 1.680" ± .005" measured from the center of the pivot hole to the front of the head.

Since this dimension is quite critical and may be difficult to gain access to, an alternate method is covered below.

Remove the head and bracket assembly from the tape deck mechanism by first unplugging the cable from the rear of the head, then remove the head tension screw. Loosen the head mounting screw and apply locktite (or other suitable adhesive) to the 4 surfaces of the head where it contacts the bracket. Insert a .082" drill bit (#45 drill) through both pivot holes. With a rule guage or vernier caliper, adjust the head to 1.721" ± .005" measured from the rear edge of the drill to the front edge of the tape head (see detail). Tighten the head mounting screw and apply glyptal to the mounting nut and screw. Re-install the head and bracket assembly, then adjust the head tension screw to the 1/4" dimension referred to in the detail. Again, apply glyptal to the bottom of this screw. Lastly, perform the azimuth and height adjustments on the head as referred to above.



HEAD POSITIONING

LUBRICATION (Refer to exploded view on page 10)

The unit is lubricated at the factory and normally no additional lubrication is required; however, if parts are replaced, the following areas should be lubricated with a lightweight, low temperature grease (Motorola Part No. 11P40059A55).

A. Drive surface of cam (39).

B. Ball bearing on end of cam (40).

C. Solenoid plunger (38).

D. Ball bearings in head mounting bracket (63 and 76).

Silicon grease (Dow Corning DC-4 - Motorola Part Number 11M490487) should be applied to the bottom of the capstan shaft (5).

TAPE PLAYER DRIVE & HEAD POSITIONING

The view shown below is one looking into the tape player from the front with a tape cartridge inserted and operating.

When the tape cartridge is inserted into the tape slot and with the unit turned on, the radio-tape switch switches the input of the audio system from the radio circuitry to tape pre-amp circuitry. At the same time, the front of the tape cartridge activates a micro-switch which, in turn, turns on the tape motor.

The drive belt on the motor shaft drives the flywheel causing it to rotate. The flywheel shaft (capstan) which presses the tape against the rubber pressure roller (inside the cartridge) drives the tape. The tape guide bracket keeps the tape from riding up and down the head.

Since the pre-recorded tape has four dual channel programs (8 tracks), the head has to be moved to four different height positions with respect to the tape. The sequence of head movement is as follows:

Tracks #1 and #5

Tracks #2 and #6

Tracks #3 and #7

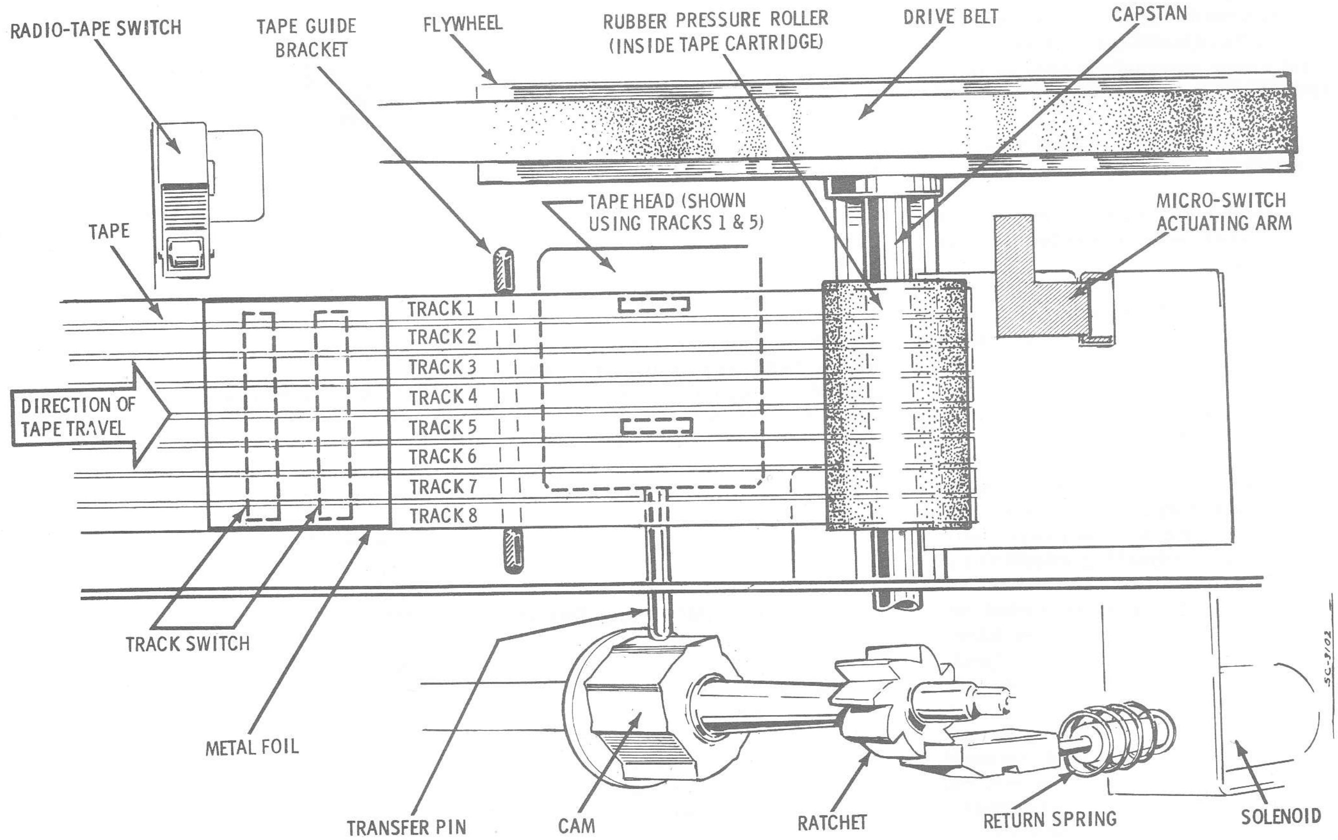
Tracks #4 and #8

Tracks #1 and #5 (return to original tracks)

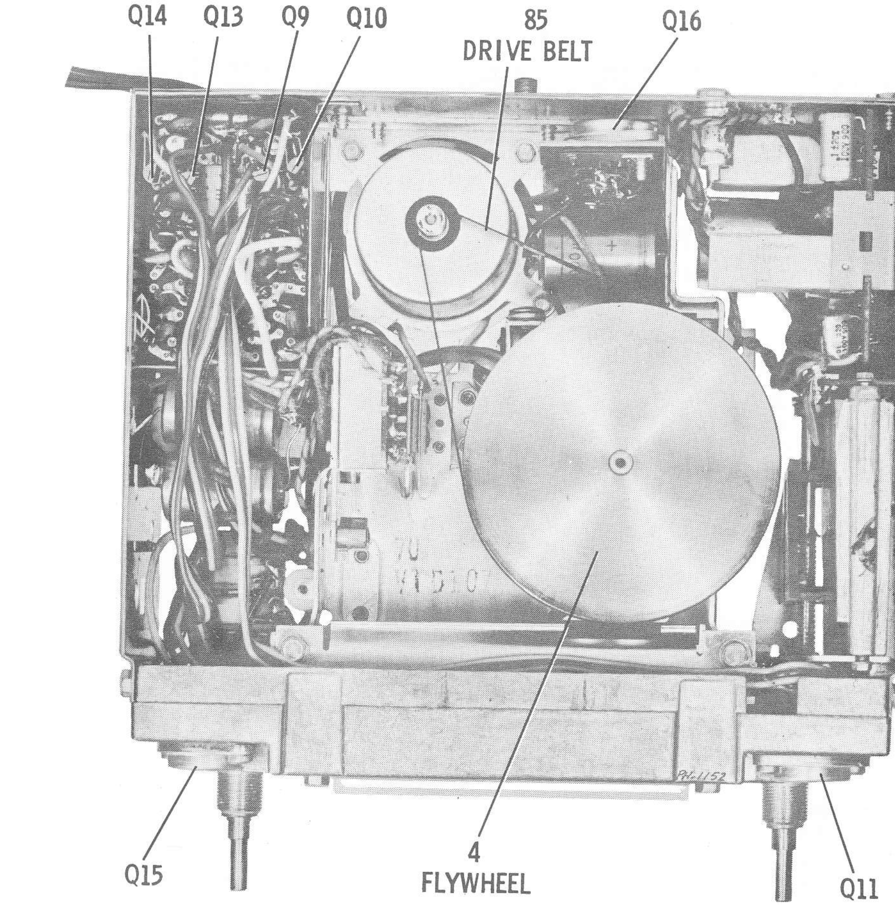
Tracks #1 - #4 are left channel; tracks #5 - #8 are right channel.

The positioning of the head can be accomplished either manually or automatically. Manual positioning is accomplished whenever the channel selector switch (on volume control shaft) is pushed in and released. The momentary shorting of this switch returns one end of the solenoid winding to ground. The resultant magnetic field in the solenoid pulls in the solenoid's spring loaded shaft for an instant; when the shaft returns to its original position, it detents the ratchet end of the cam shaft to its next position. In contact with the irregularly shaped cam is the tape head transfer pin (located beneath the head) which moves the head up or down.

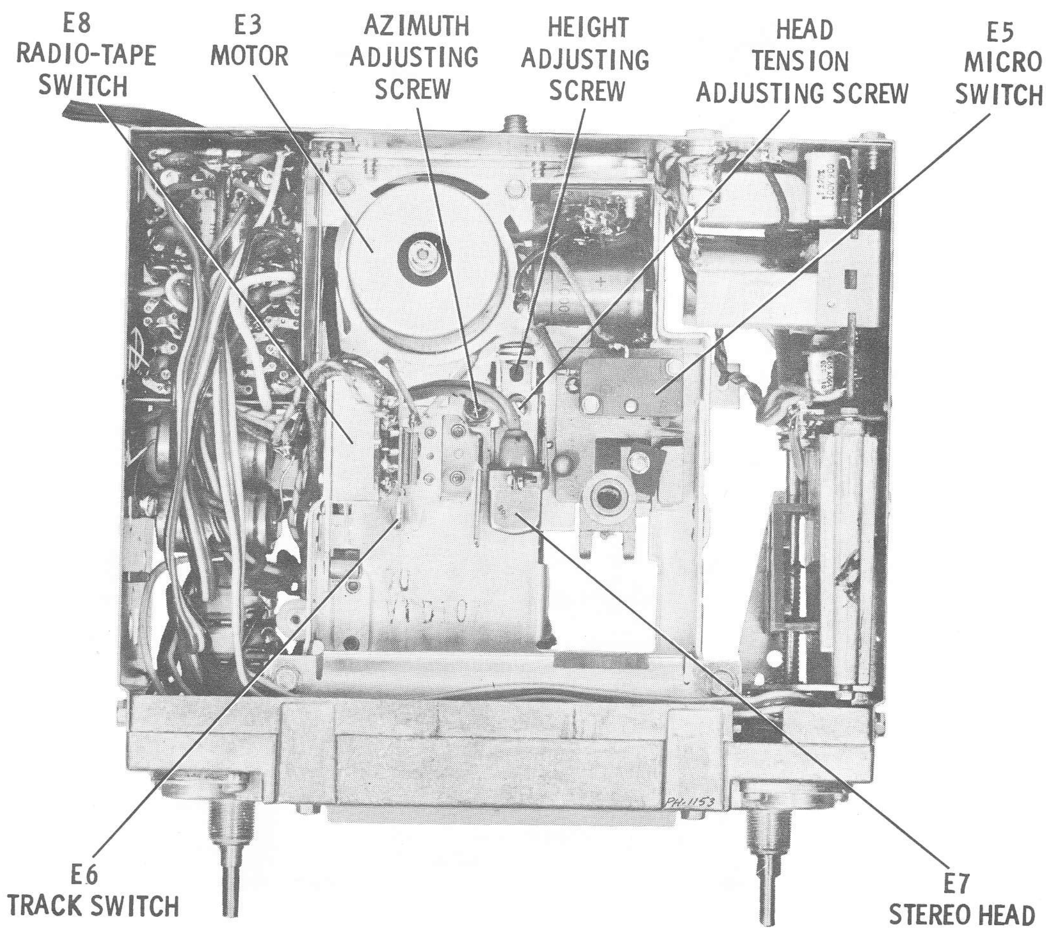
Automatic positioning of the head to the next dual channel program is accomplished by the tape itself when the end of a program is reached. The pre-recorded tape has, at the end of the recorded programs, a strip of metal foil which shorts out the track switch which is in contact with the tape at all times. This switch is wired in parallel with the channel selector switch to start the same action that occurred when the channel selector switch was activated.



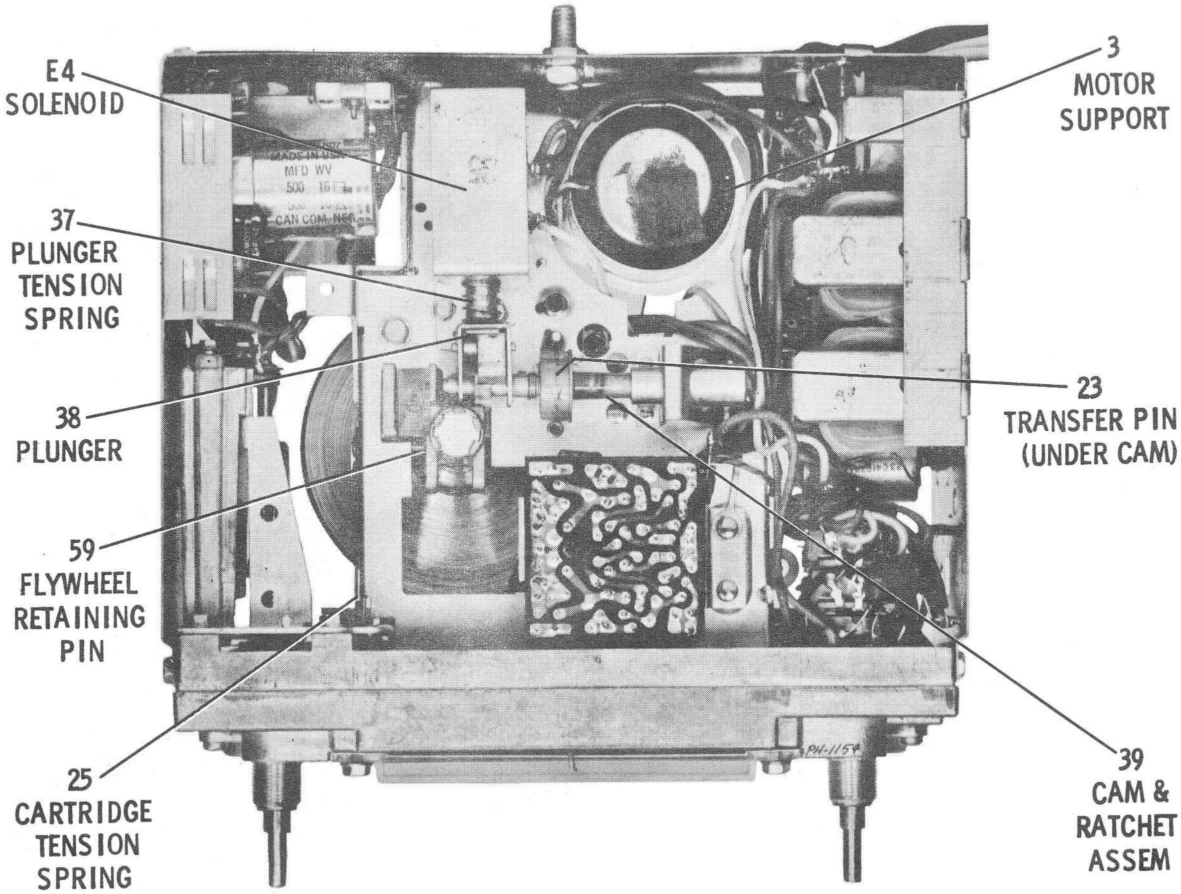
TAPE DRIVE AND HEAD POSITIONING



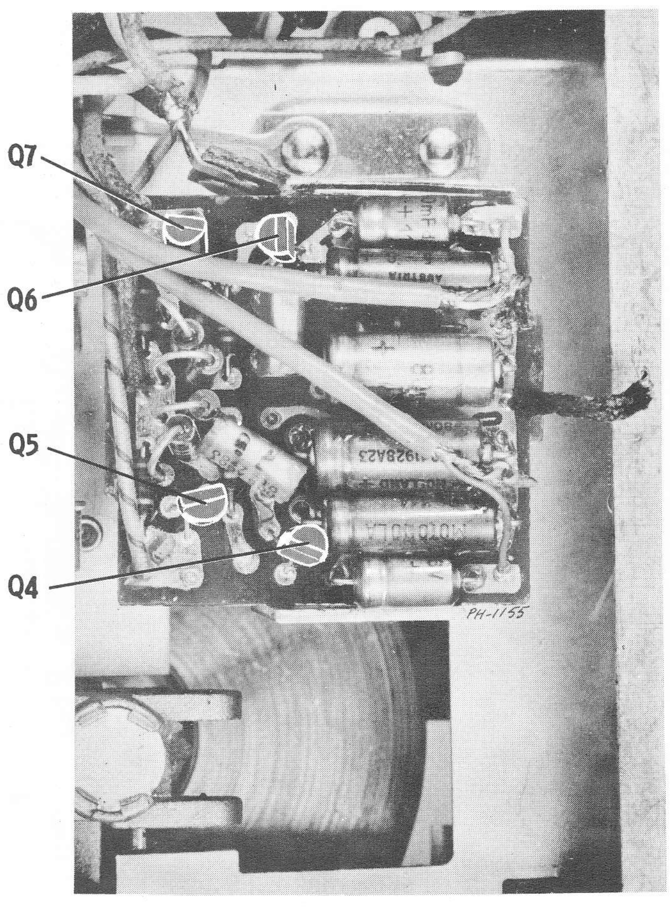
PARTS LOCATION - TOP VIEW



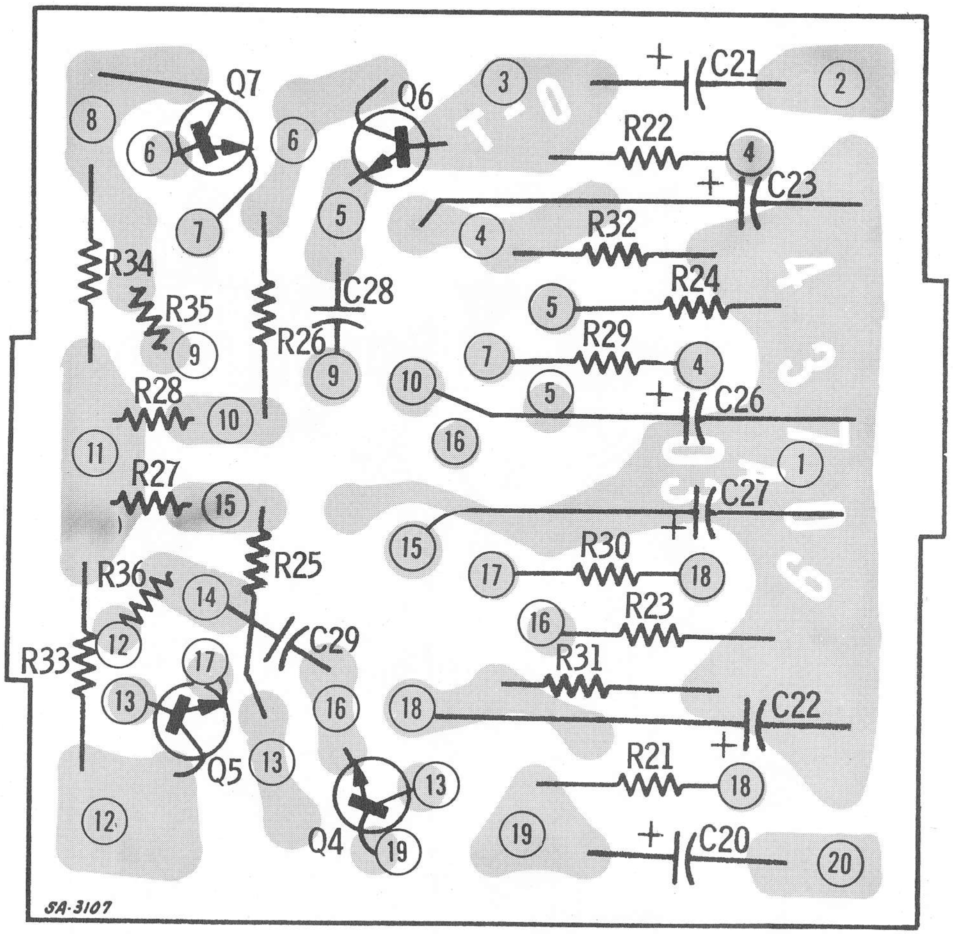
PARTS LOCATION - TOP VIEW WITH FLYWHEEL REMOVED



PARTS LOCATION - BOTTOM VIEW



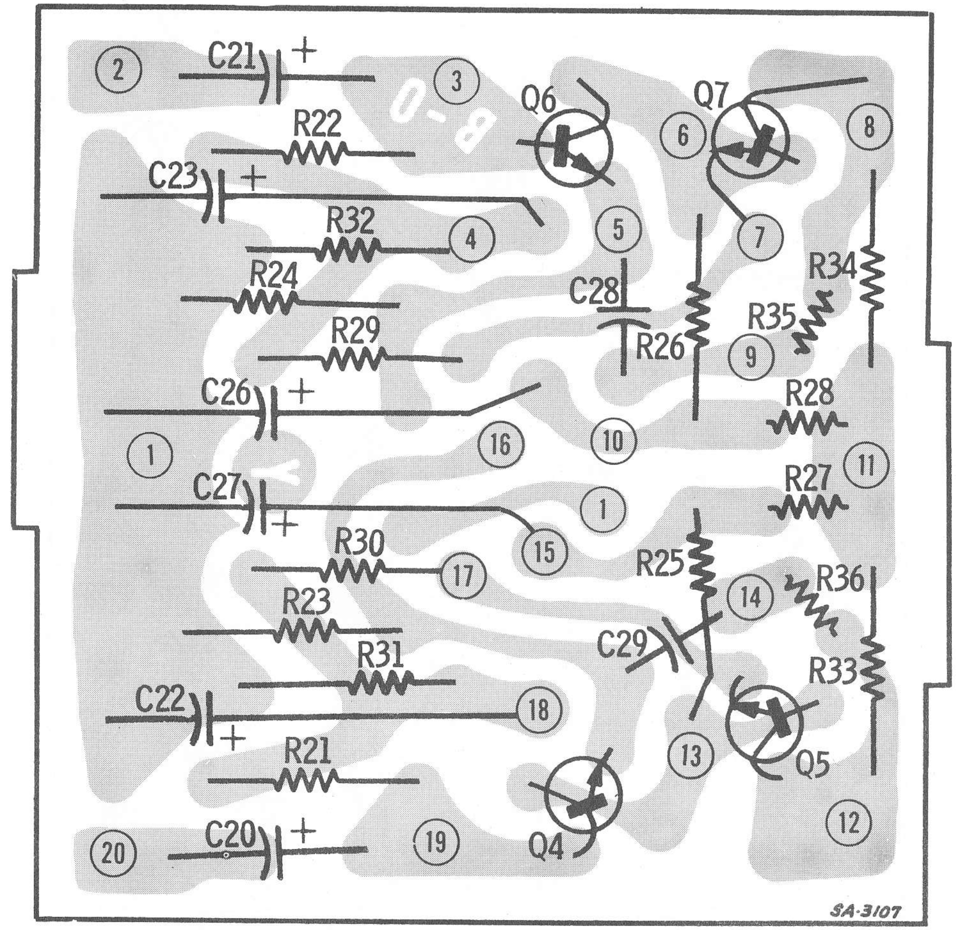
PARTS LOCATION - PRE-AMP CHASSIS



TAPE PRE-AMP - TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

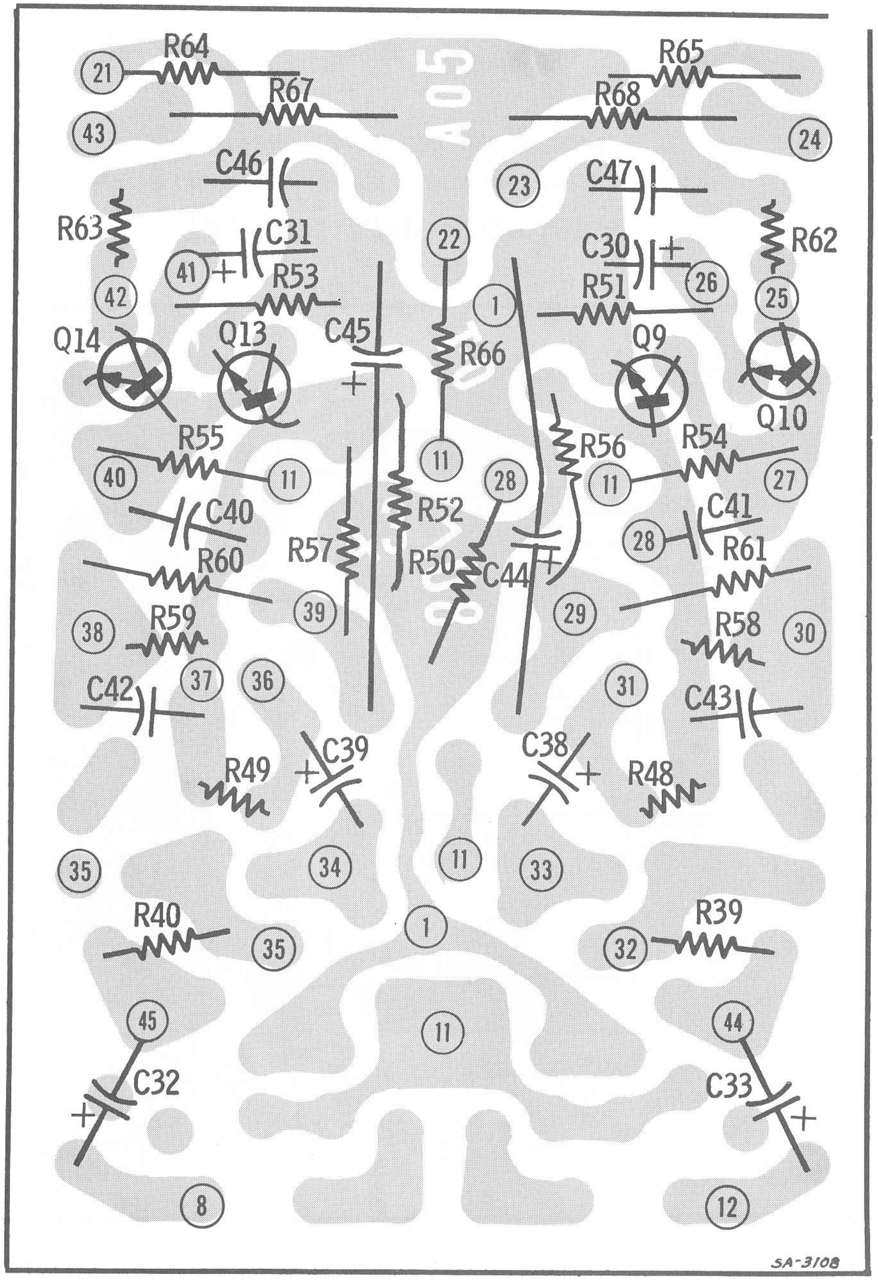
(VIEW FROM COMPONENT SIDE OF BOARD)



TAPE PRE-AMP - BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

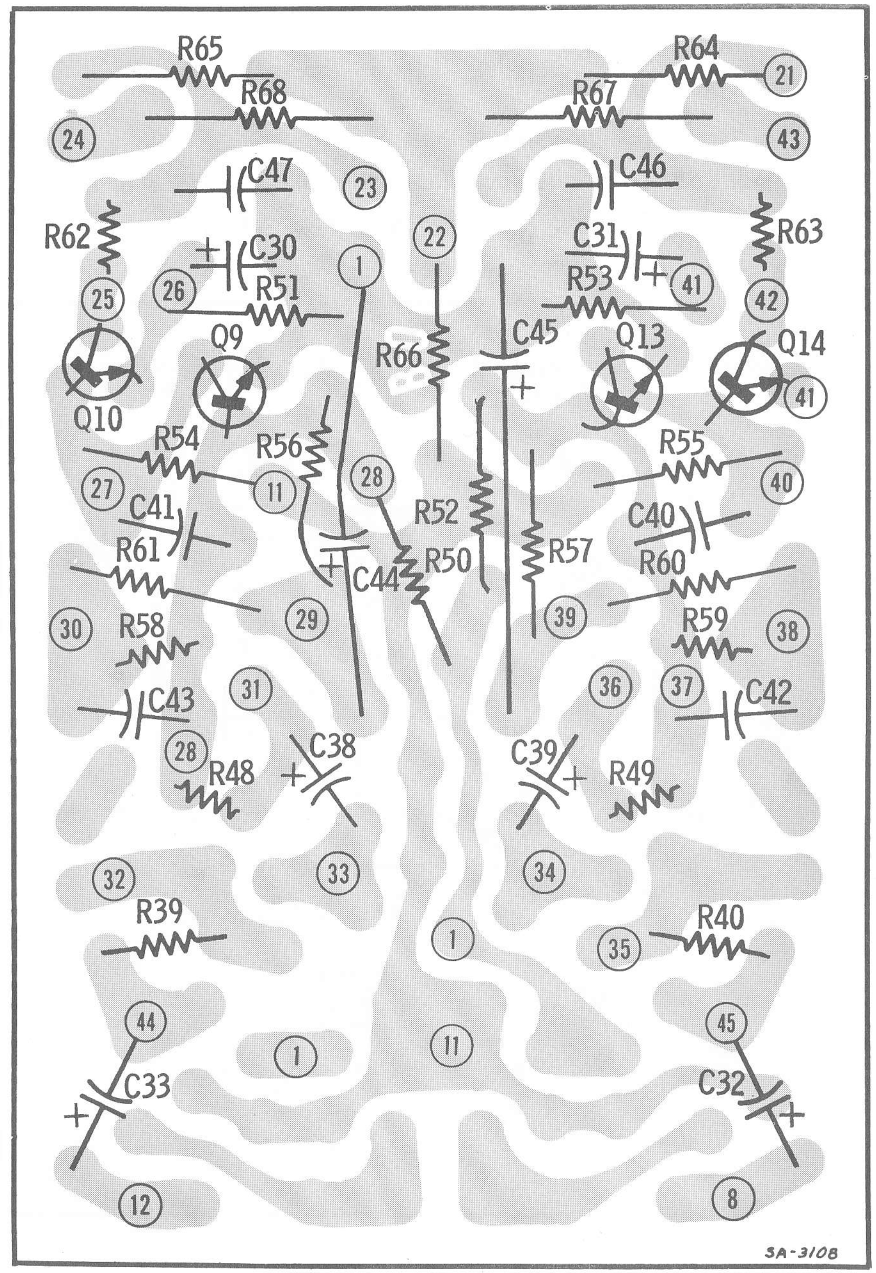
(VIEW FROM WIRING SIDE OF BOARD)



AUDIO AMPLIFIER - TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

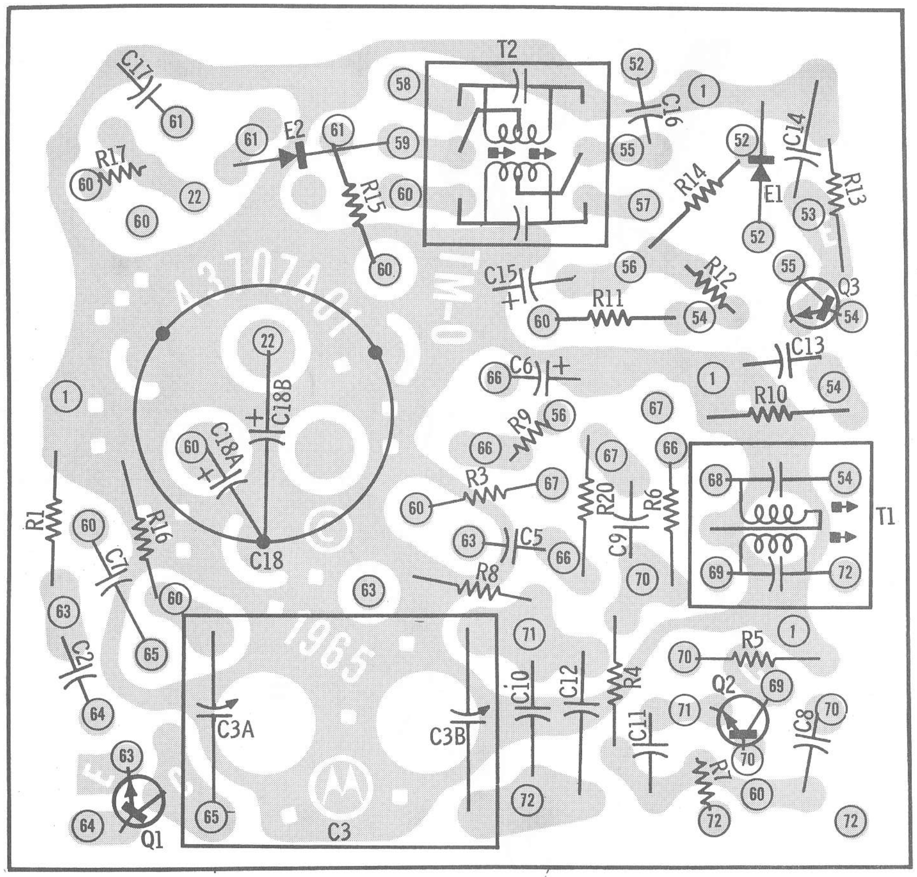
(VIEW FROM COMPONENT SIDE OF BOARD)



AUDIO AMPLIFIER - BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

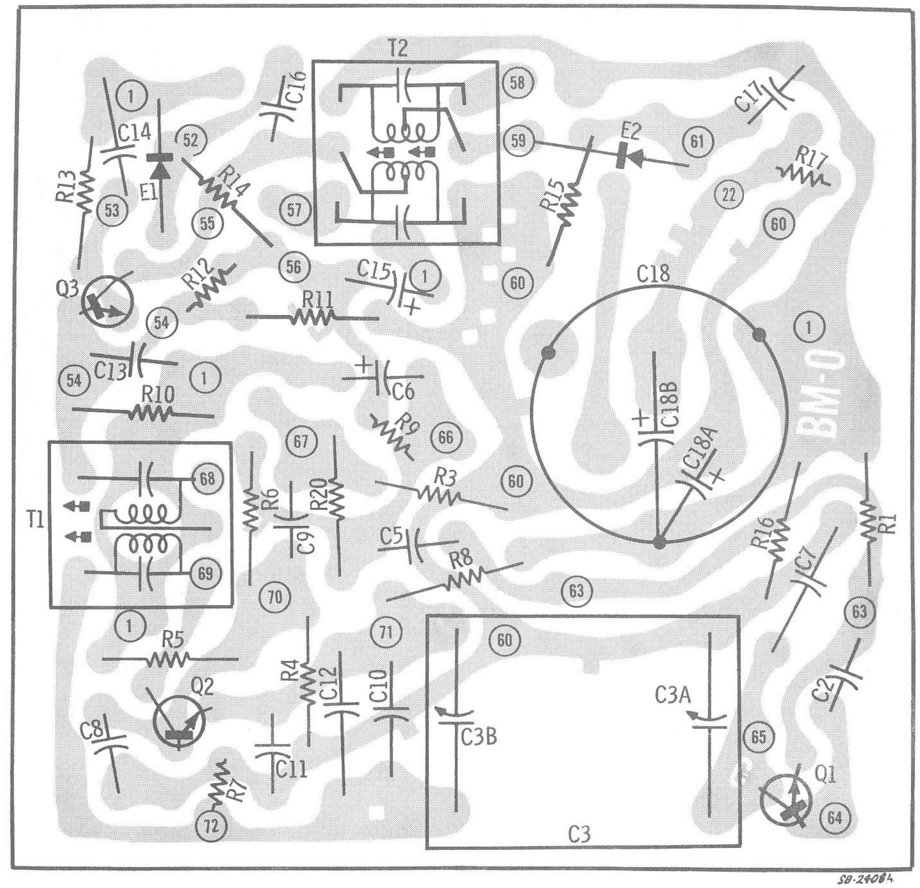
(VIEW FROM WIRING SIDE OF BOARD)



AM RADIO - TOP VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

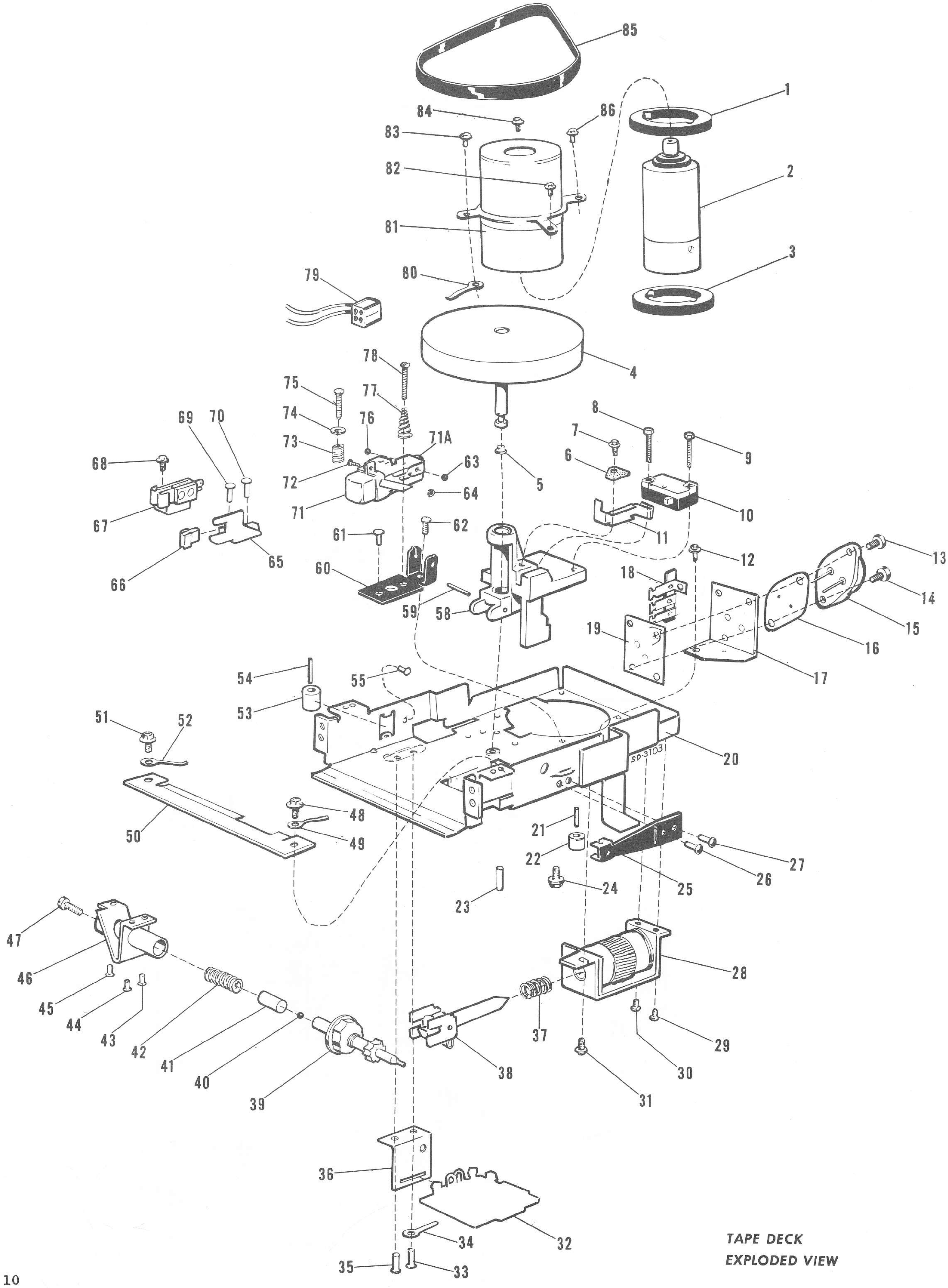
(VIEW FROM COMPONENT SIDE OF BOARD)



AM RADIO - BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

(VIEW FROM WIRING SIDE OF BOARD)



TAPE DECK
EXPLODED VIEW

TAPE PLAYER TROUBLESHOOTING CHART

NOTE #1: DO NOT OPERATE TAPE PLAYER UPSIDE DOWN - CARTRIDGE MAY JAM.

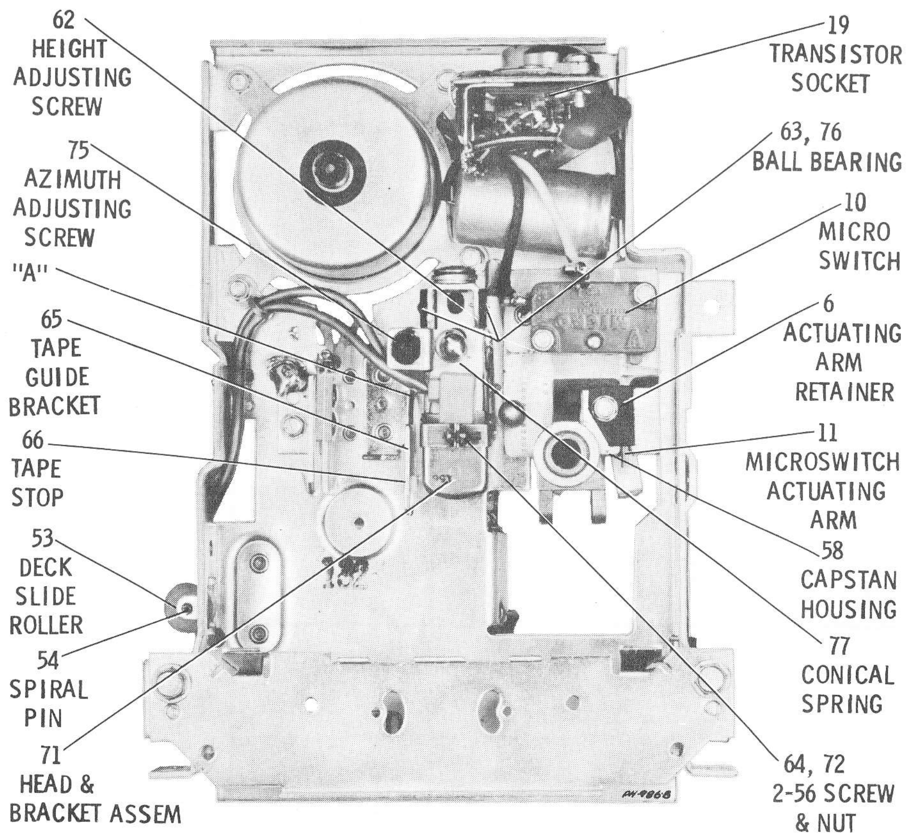
NOTE #2: MANY TAPE PLAYER PROBLEMS CAN BE CAUSED BY DEFECTIVE CARTRIDGES; BEFORE SERVICING THE TAPE PLAYER, CHECK FOR A DEFECTIVE CARTRIDGE BY SUBSTITUTING A KNOWN GOOD CARTRIDGE.

SYMPTOM	CAUSE	POSSIBLE SOLUTION
Tape breaks or winds up around capstan shaft.	1. Defective tape cartridge.	Check tape cartridge by inserting a known good tape cartridge. Before inserting new cartridge, examine actuating arm (see Cause #2).
	2. Bent or burred edge on front of micro-switch actuating arm (11).	Replace arm.
	3. Defective capstan housing (58).	Replace capstan housing.
Cross-talk.	1. Defective tape cartridge.	Check tape cartridge by substitution with a known good tape cartridge.
	2. Tape head (71) out of adjustment.	Check head height and azimuth adjustments with a test tape (Motorola Part No. 99P43309A01) as outlined in "Adjustments" section.
	3. Head mounting bracket (71A) binding.	Grasp at rear of head mounting bracket with a pair of long nose pliers and squeeze gently while moving head up and down until binding is relieved. CAUTION: Do not apply excessive pressure as ball bearings may pop out. To check this adjustment, index tape head to its lower position (tracks #4 and #8), then with unit vertical, lift up tape head; it should have sufficient tension to spring back against the transfer pin without binding. Also check for 1/4" adjustment of head tension adjusting screw (see "Adjustments").
	4. Tape guide bracket (65) not positioning tape correctly with respect to tape head.	Check distance between bottom edge of tape guide bracket and chassis; it should be .090" - .095". If it is not, bend or replace the tape guide bracket. CAUTION: Bend at point "A" not at the two (2) tines (see photo).
	5. Thrust plate on bottom of capstan housing (58) loose or missing.	Replace capstan housing.
	6. Defective cam and ratchet assembly (39).	Replace cam and ratchet assembly.
	7. Tape head not indexing correctly.	See "Improper or Erratic Head Indexing".
Motor runs fast.	1. Defect in regulator circuitry.	Check regulator transistor by shorting base to emitter of regulator transistor (to remove forward bias), motor should stop; if it does not, regulator transistor is shorted.
	2. Defective motor (2).	Replace.
Slow speed (also see "Poor Tape Drive").	1. Defective tape cartridge.	Check tape cartridge by inserting a known good cartridge.
	2. Mechanical binding.	Check for binding by first removing tape cartridge, turn on motor with micro-switch actuating arm and check flywheel speed with a strobe disc (Motorola Part Number 68P40059A33 or equivalent). If speed is excessively slow, shut off unit and remove drive belt; flywheel should move freely when turned by hand. If it does not, check for missing nylon bearing on bottom of flywheel, loose or missing thrust plate at bottom of capstan housing, defective bearings in capstan housing or defective flywheel.

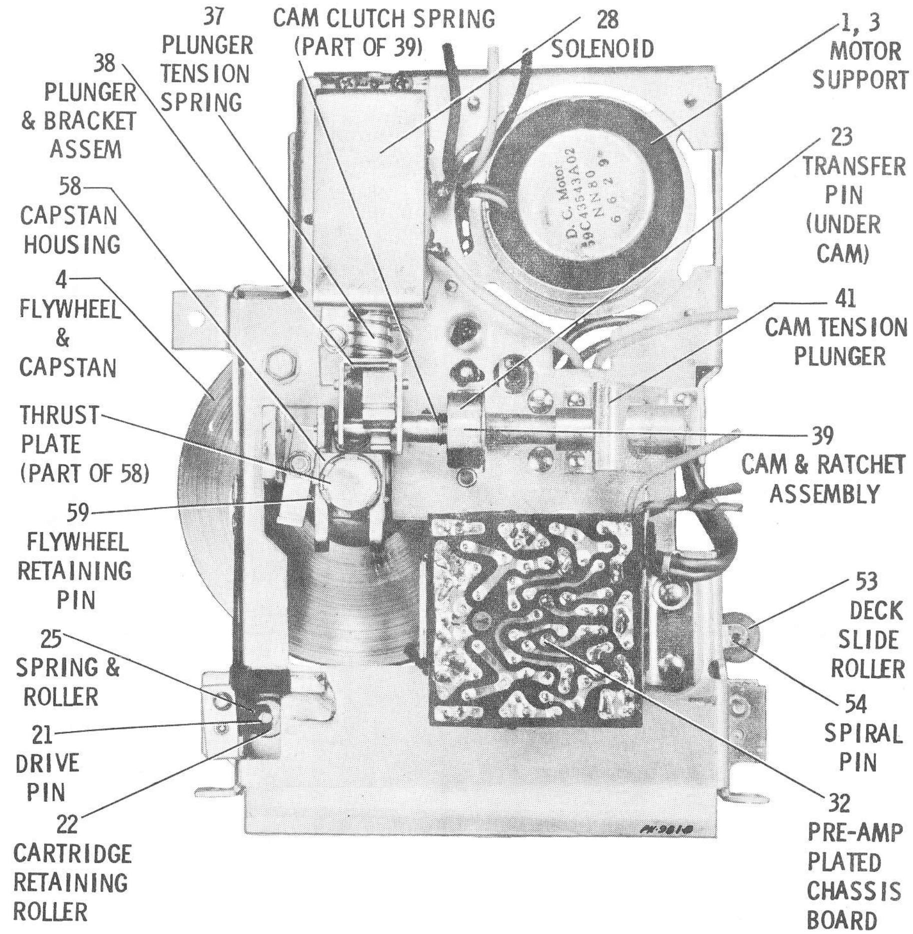
TAPE PLAYER TROUBLESHOOTING CHART (CON'T)

SYMPTOM	CAUSE	POSSIBLE SOLUTION
Slow speed (also see "Poor Tape Drive"). (Cont'd)		If flywheel moves freely when turned by hand, check for defective drive belt, tape cartridge or electrical problem (see Cause #3).
	3. Electrical defects. A. Open regulator filter capacitor, C-52.	Replace C-52.
	B. Defective motor (2).	Check motor by grounding motor governor (junction of yellow motor wire and R-18) for an instant, motor should speed up; if motor does not speed up, motor is defective. If motor does speed up, check voltages in regulator circuitry.
Poor tape drive, wow and flutter (also see "Slow Speed").	1. Defective tape cartridge.	Check tape cartridge by inserting a known good tape.
	2. Insufficient tension on tape cartridge.	Check cartridge tension by pulling cartridge slightly away from tape head, then release; the cartridge should snap back into place and there should be no end play on the right side of the cartridge. If the cartridge does not snap in or there is end play, replace the spring and roller (25). Make sure mounting screw does not protrude too far to interfere with cartridge. Also, with cartridge inserted, the roller (53) on the left side should be in contact with the cartridge. If it is not, replace the roller (Motorola Part Number 49A43659A03).
	3. Flywheel (4) and/or motor drive shaft (part of 2) dirty or greasy.	Use isopropyl (rubbing) alcohol to clean the following areas: outer edge of flywheel, motor drive shaft and capstan shaft.
	4. Defective or incorrectly installed drive belt (85).	Drive belt should be replaced if stretched or banana shaped; belt should be installed with paint stripe on outside.
	5. Cartridge retaining roller (22) not seated properly or missing.	Make certain roller is seated in spring (25); replace if missing.
	6. Scraping cartridge.	Examine left side of tape cartridge; if severely scored, lightly file off any burrs on left front edge of tape slot or escutcheon.
	7. Scored capstan shaft (part of 4).	Replace; if severely scored, replace capstan housing (58) also.
	8. Bent motor housing (81).	With cartridge inserted and operating, make certain drive belt rides on center of brass motor pulley; bend the motor housing using wide jawed pliers if necessary. If belt rides too high, bend the housing away from the capstan; if belt rides too low (rubs against housing), bend the housing toward the capstan. CAUTION: Do not bend the brass motor pulley.
Improper or erratic head indexing.	1. Inadequate tension on solenoid plunger tension spring (37).	Increase tension on spring or replace.
	2. Defective solenoid plunger (38).	Replace solenoid plunger.
	3. Head tension screw (78) out of adjustment.	Set the height of the screw so that there is 1/4" between bottom flat portion of the screw head and the head bracket (see "Head Adjustment Location" detail).
	4. Cam clutch spring (part of 39) out of hole or missing.	Insert spring into its hole or replace cam if spring is missing.

SYMPTOM	CAUSE	POSSIBLE SOLUTION
	5. Defective cam and ratchet assembly (39).	Replace cam.
	6. Head cable (79) binding.	Make certain head cable does not restrict up-and-down motion of head; dress head cable to minimize binding.
Motor noise from tape motor.	1. Open regulator filter capacitor (C-52).	Replace capacitor.
	2. Motor grounded to cover.	Check to see that bottom cover has an armite disc attached to it to insulate the motor case from the cover. If the disc is missing, electrical tape can be used to insulate the motor.
Squeaking or excessive wow.	1. Defective tape cartridge.	Check tape cartridge by inserting a known good cartridge.
	2. Broken or missing nylon capstan bearing (5).	Replace bearing; lubricate replacement bearing with silicon grease, Part No. 11M490487.
	3. Scored capstan shaft (part of 4).	Replace; if severely scored, replace capstan housing (58) also.
	4. Thrust plate (part of 58) loose or missing from bottom of capstan housing or defective bearings in capstan housing.	Replace capstan housing (58). Do not attempt to lubricate oilite bearings in capstan housing.
Drive belt slips off flywheel (also slow tape start up).	1. Defective or incorrectly installed drive belt (85).	Drive belt should be replaced if stretched or banana shaped; belt should be installed with paint stripe on outside.
	2. Loose motor mounting screws (82, 83, 84 and 86).	Tighten.
	3. Motor drive shaft (part of 2) not vertical.	Bend the motor housing slightly away from the capstan shaft using wide jawed pliers. CAUTION: Do not apply any pressure to the brass motor pulley.
Tape motor does not run when cartridge is inserted.	1. Micro-switch (10) not activated.	Bend actuating arm (11) far enough to activate micro-switch when cartridge is inserted.
	2. Defective micro-switch (10) or defect in motor or regulator circuit.	Check micro-switch by applying B+ voltage directly to emitter of regulator transistor. Also compare voltages in regulator circuit to those on schematic.
	3. Shorted regulator filter capacitor (C-52) or defective regulator transistor.	Replace suspected component(s).
Intermittent audio during tape operation.	1. Loose or intermittent head cable (79).	Make certain head cable is firmly plugged into head. Cable can be checked for intermittent(s) by wiggling; replace cable if necessary.
	2. Defective tape-radio switch, E-8, and/or associated circuitry.	Check switch action both electrically and mechanically; replace switch if necessary.
Unit will not switch from radio to tape and/or vice versa when cartridge is inserted or removed.	1. Radio-tape changeover switch, E-8, or actuating arm (part of switch) bent or defective	Check switch action both electrically and mechanically; replace switch if necessary.

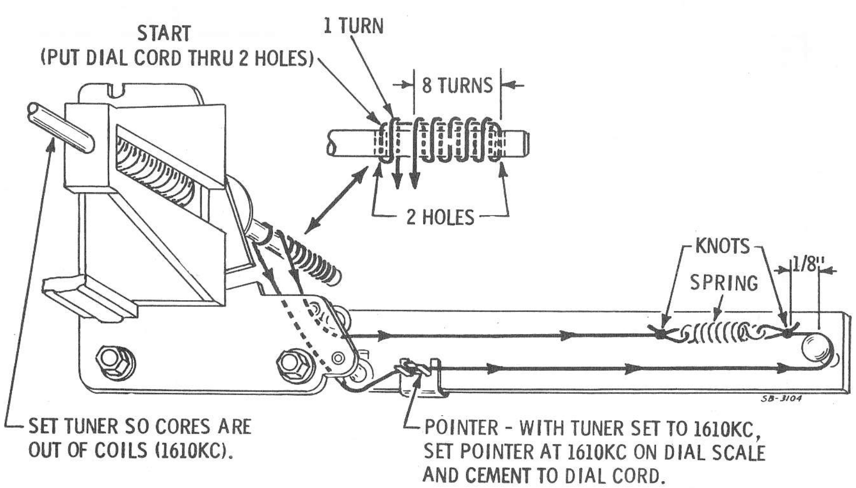


TOP VIEW



BOTTOM VIEW

TAPE DECK PARTS LOCATION



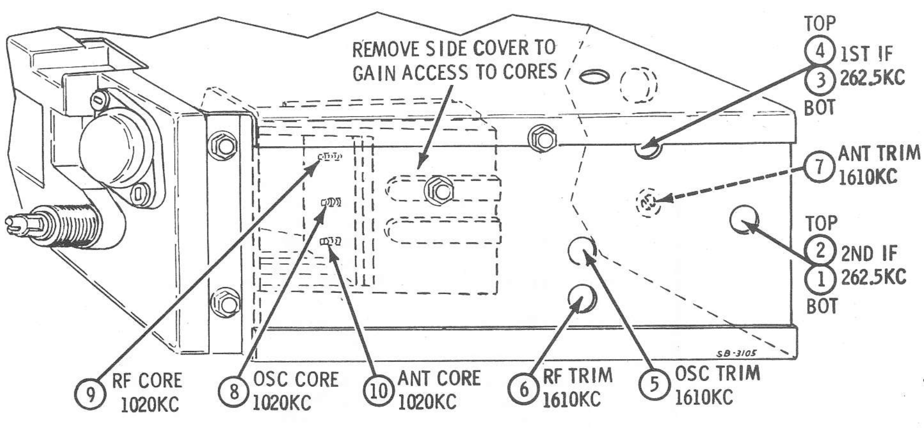
DIAL STRINGING

RADIO ALIGNMENT

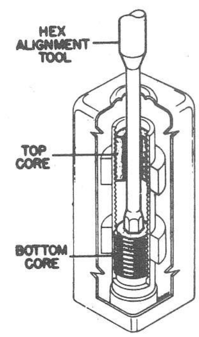
Connect an output meter across the speaker voice coil. Set volume to maximum and tone to treble. Attenuate signal generator output to maintain 2.83 volts (1 watt across 8 ohm load on either channel) on output meter at all times to prevent receiver overloading.

STEP	GENERATOR CONNECTION	GENERATOR FREQUENCY (400 cycle mod)	TUNER SET TO	ADJUST	REMARKS
IF ALIGNMENT					
1.	Antenna receptacle thru .1mf and chassis	262.5Kc	High end stop	1, 2, 3 & 4	Adjust for maximum.
RF ALIGNMENT					
2.	Antenna receptacle thru dummy (see Figure)	1610Kc	High end stop	5, 6 & 7	Adjust for maximum.
NOTE:	Do not perform Steps #3, #4, #5 and #6 unless tuner has been tampered with or components have been replaced. Before proceeding with Step #3, back tuning cores as far as possible out of coil forms to eliminate their effect on trimmer adjustments. Remove the side cover to gain access to the tuner cores.				
3.	Antenna receptacle thru dummy (see Figure).	1610Kc	High end stop	5, 6 & 7	Adjust for maximum.
4.	"	1020Kc	Tuner carriage 9/16" from high end stop	8, 9 & 10	Adjust for maximum.
5.	"	1610Kc	High end stop	5, 6 & 7	Adjust for maximum.
6.	Repeat Steps #4 and #5 until no further increase; Step #5 should be last step. Then cement cores in place.				
ANTENNA TRIMMER					
7.	---	---	Weak station between 1400 and 1600Kc	7	Adjust for maximum with radio installed in car and antenna fully extended.

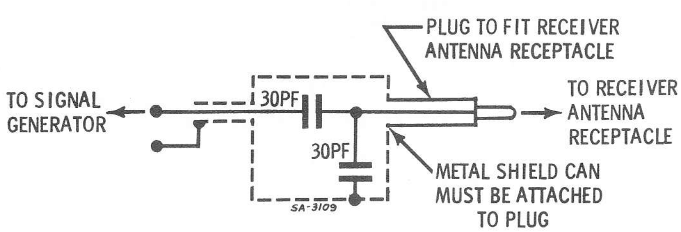
TO CALIBRATE POINTER - Tune radio to 1000Kc signal and reposition pointer on dial cable with the center of the 1000Kc mark on dial scale.



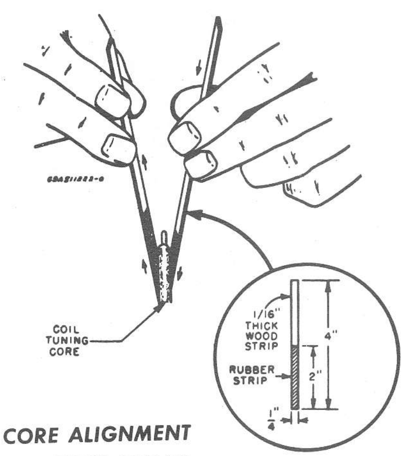
ALIGNMENT LOCATION DETAIL



IF ALIGNMENT DETAIL



DUMMY ANTENNA



CORE ALIGNMENT TOOL DETAIL

REPLACEMENT PARTS LIST

ELECTRICAL PARTS

CAPACITORS - NOTE: The capacitors in this list are recommended replacement types for the original equipment; all are ceramic disc type unless otherwise specified.

Ref. No.	Part Number	Description	List Price
C-1	*20C40746A06	TRIMMER 110 to 380 pf......	.85
C-2	21D40339A83	330 pf 20% 100V (USE 21K752589)..............	.25
C-3	20C40254A14	DUAL TRIMMER 30 to 150 pf; 30 to 150 pf.............	1.15
C-4	21D40536A30	180 pf 10% 100V N750....	.20
C-5	8C42750A06	.01 mf 20% 100V mylar...	.25
C-6	23C43280A02	2 mf +40-20% 10V lytic..	.45
C-7	21C40367A19	250 pf 5% 100V..........	.40
C-8	8C42750A06	.01 mf 20% 100V mylar...	.25
C-9	8C42750A06	.01 mf 20% 100V mylar...	.25
C-10	21D40536A49	180 pf 5% 100V N750.....	.25
C-11	8C42750A20	.0047 mf 10% 100V mylar (USE 8C40906A27)..........	.30
C-12	21C40367A14	160 pf 5% 100V MICA (USE 21C40367A09).........	.30
C-13	8C42750A35	.002 mf 10% 100V mylar..	.30
C-14	8C42750A13	.1 mf 20% 100V mylar (USE 8C40906A05)..........	.35
C-15	23C43280A03	10 mf +40-20% 6V lytic..	.55
C-16	21C40339A44	150 pf 10% 100V..........	.20
C-17	8C42750A06	.01 mf 20% 100V mylar...	.25
C-18	23C40302A07	500-500 mf/16V lytic (USE 23C40302A04)..............	3.40
C-20 thru C-29	---	SEE TAPE DECK PARTS	
C-30	23C41928A33	32 mf 10V lytic..........	.65
C-31	23C41928A33	32 mf 10V lytic..........	.65
C-32	23C43280A21	.5 mf +40-20% 15V lytic.	.30
C-33	23C43280A21	.5 mf +40-20% 15V lytic.	.30
C-34	23C43280A14	.1 mf +40-20% 15V lytic.	.35
C-35	23C43280A14	.1 mf +40-20% 15V lytic.	.35
C-36	21C41680A15	.22 mf +80-20% 12V.......	.35
C-37	21C41680A15	.22 mf +80-20% 12V.......	.35
C-38	23C43280A02	2 mf +40-20% 10V lytic..	.45
C-39	23C43280A02	2 mf +40-20% 10V lytic..	.45
C-40	21D40339A87	.0015 mf 10% 100V........	.20
C-41	21D40339A87	.0015 mf 10% 100V........	.20
C-42	21D40536A50	22 pf 10% 100V N150 (USE 21R120539)...........	.25
C-43	21D40536A50	22 pf 10% 100V N150 (USE 21R120539)...........	.25
C-44	23C41928A23	80 mf 16V lytic..........	.65
C-45	23C41928A23	80 mf 16V lytic..........	.65
C-46	21D40339A87	.0015 mf 10% 100V........	.20
C-47	21D40339A87	.0015 mf 10% 100V........	.20
C-48	23C41928A29	1000 mf 16V lytic........	1.65
C-49	21D40339A78	.01 mf +80-20% 100V (USE 21K132103)...........	.25
C-50	23C41928A29	1000 mf 16V lytic........	1.65
C-51, C-52	---	SEE TAPE DECK PARTS	
C-53	8C40906A05	.1 mf 20% 100V mylar....	.35
C-54	21D40339A78	.01 mf +80-20% 100V (USE 21K132103)...........	.25
C-55	21D40339A78	.01 mf +80-20% 100V (USE 21K132103)...........	.25
C-56	21D40339A78	.01 mf +80-20% 100V (USE 21K132103)...........	.25

MISCELLANEOUS ELECTRICAL PARTS

Ref. No.	Part Number	Description	List Price
E-1	48S134816	DIODE, silicon............	.35
E-2	48S134816	DIODE, silicon............	.35
E-3 thru E-7	---	SEE TAPE DECK PARTS	
E-8	40B43656A01	SWITCH, radio tape.........	2.35
E-9	---	SEE TAPE DECK PARTS	
E-10	65S538410	BULB, dial: .11A-14.4V.....	.35
E-11	50C41451B01	SPEAKER, 4 x 8 PM: 8Ω VC (A7MVF, VS)..............	9.60
	50C41607B01	SPEAKER, 5-1/4" PM: 8Ω VC (A7MVG)..................	7.05
	50C41485B01	SPEAKER, 6" PM: 8Ω VC (A7MVT)..................	6.60
	50C41265B01	SPEAKER, 5" PM: 8Ω VC (A7MVW)..................	6.60
E-12	50C41265B01	SPEAKER, 5" PM: 8Ω VC (A7MVF, VG, VW)..........	6.60
	50C41485B01	SPEAKER, 5-1/4" PM: 8Ω VC (A7MVS, VT)..............	6.60
E-13	---	SEE TAPE DECK PARTS	
E-14	65S122346	FUSE, 7.5 amp.............	.10
E-15	50C41265B01	SPEAKER, 5" PM: 8Ω VC (A7MVF)..................	6.60
	50C41485B01	SPEAKER, 5-1/4" PM: 8Ω VC (A7MVT)..................	6.60

COILS & CHOKES

Ref. No.	Part Number	Description	List Price
L-1, L-2, L-3	---	SEE TUNER PARTS	
L-4	25D43221A24	FILTER CHOKE..............	3.95

CONTROLS & RESISTORS

Ref. No.	Part Number	Description	List Price
R-1	6S127800	220 10% 1/4W.............	.17
R-2	6S127800	220 10% 1/4W.............	.17
R-3	6S129775	330 10% 1/4W.............	.17
R-4	6S129144	82K 10% 1/4W.............	.17
R-5	6S129144	68K 10% 1/4W.............	.17
R-6	6S127806	27K 10% 1/4W.............	.17
R-7	6S129981	3300 5% 1/4W.............	.33
R-8	6S128689	2200 10% 1/4W...........	.17
R-9	6S128687	6800 10% 1/4W...........	.17
R-10	6S127804	4700 10% 1/4W...........	.17
R-11	6S127807	33K 10% 1/4W............	.17
R-12	6S129226	100K 10% 1/4W...........	.17
R-13	6S127800	220 10% 1/4W.............	.17
R-14	6S128687	6800 10% 1/4W...........	.17
R-15	6S129146	150K 10% 1/4W...........	.17
R-16	6S127803	1500 10% 1/4W...........	.17
R-17	6S127633	470 10% 1/2W.............	.17
R-18, R-19	---	SEE TAPE DECK PARTS	
R-20	6S129148	470K 10% 1/4W...........	.17
R-21 thru R-36	---	SEE TAPE DECK PARTS	
R-39	6S121301	1000 10% 1/2W...........	.17
R-40	6S121301	1000 10% 1/2W...........	.17
R-41	*18C40587B01	CONTROL, balance...........	1.55
R-42	6S128689	2200 10% 1/4W...........	.17
R-43	6S128689	2200 10% 1/4W...........	.17
R-44	6S127803	1500 10% 1/4W...........	.17
R-45	6S127803	1500 10% 1/4W...........	.17
R-46	18C40483B01	CONTROL, multiple..........	9.60
R-48	6S121301	1000 10% 1/2W...........	.17
R-49	6S121301	1000 10% 1/2W...........	.17
R-50	6S129147	220K 10% 1/4W...........	.17
R-51	6S131377	15 10% 1/4W..............	.17
R-52	6S129147	220K 10% 1/4W...........	.17
R-53	6S131377	15 10% 1/4W..............	.17
R-54	6S129433	5600 10% 1/4W...........	.17
R-55	6S129433	5600 10% 1/4W...........	.17
R-56	6S128903	39K 10% 1/4W............	.17
R-57	6S128903	39K 10% 1/4W............	.17
R-58	6S127001	2.2 meg 10% 1/2W.........	.17
R-59	6S127001	2.2 meg 10% 1/2W.........	.17
R-60	6S127802	1000 10% 1/4W...........	.17
R-61	6S127802	1000 10% 1/4W...........	.17
R-62	6S127099	220 10% 1/2W.............	.17
R-63	6S127099	220 10% 1/2W.............	.17
R-64	6S129753	100 10% 1/4W.............	.17
R-65	6S129753	100 10% 1/4W.............	.17
R-66	6S127800	220 10% 1/4W.............	.17
R-67	17B40756A04	.20 5% WW (USE 17B40756A06)..............	.15
R-68	17B40756A04	.20 5% WW (USE 17B40756A06)..............	.15
R-69	6S129101	680 10% 1/2W.............	.17

TRANSFORMERS

Ref. No.	Part Number	Description	List Price
T-1	24D42517A27	1ST IF.....................	1.60
T-2	24D42517A28	2ND IF.....................	1.75
T-3	25D41307B07	OUTPUT (left channel)......	1.55
T-4	25D41307B05	OUTPUT (left channel)......	1.55

TRANSISTORS

Ref. No.	Part Number	Description	List Price
Q-1	48S134805	25B.......................	1.45
Q-2	48S134804	25A.......................	1.45
Q-3	48S134807	24B.......................	1.45
Q-4 thru Q-7	---	SEE TAPE DECK PARTS	
Q-9	48S134810	54C.......................	1.45
Q-10	48S134810	54C.......................	1.45
Q-11	48S134747	2N176.....................	3.25
Q-13	48S134810	54C.......................	1.45

Ref. No.	Part Number	Description	List Price
Q-14	48S134810	54C	1.45
Q-15	48S134747	2N176	3.25
Q-16	---	SEE TAPE DECK PARTS	

MECHANICAL PARTS

Ref. No.	Part Number	Description	List Price
	*13D41017B07	BEZEL, radio (A7MVF, VS)	9.70
	*13D40655B04	BEZEL, radio (A7MVG, VT)	3.45
	*13D40655B01	BEZEL, radio (A7MVW)	3.90
	84D43708A05	BOARD, plated audio	2.10
	84D43707A01	BOARD, plated RF	1.10
	3A40730A03	BOLT, radio mtg: 1/4-20 x 5/8	.03
	7A40566B02	BRACKET, radio mtg (A7MVF, VS)	.15
	*30B41610B01	CABLE, rear spkr: incl all conn (A7MVF)	3.45
	*30B41610B02	CABLE, rear spkr: incl all conn (A7MVT)	4.50
	7C43782A01	CAM, BRCKT & ROLLER ASSEM: radio tape sw	
	15D40565B01	COVER, bottom	.70
	15D40563B01	COVER, top	.65
	15C41588B01	COVER, trim: between radio & dash (A7MVF, VS)	
	15D40686B01	COVER, trim; lge: radio (A7MVF, VS)	1.20
	*61B40602B01	CRYSTAL, dial	.75
	*15C41109B03	DOOR, tape cartridge	6.75
	13C40658B01	GRILLE, spkr (A7MVG, VT)	1.60
	15C40810B01	HOUSING, spkr: rear (A7MVT)	1.95
	14D40596A01	INSULATOR, female: 3-cond spkr leads	.05
	14A42296A01	INSULATOR, male: 2-cond spkr leads (A7MVG, VS,VW)	.10
	14A543810	INSULATOR, trans	.10
	36C40039B01	KNOB, tone & bal (A7MVF, VS)	.35
	36B40252B01	KNOB, vol-tuning-indexing (A7MVF, VS)	.40
	29A541679	LUG, term: blade type (spkr leads)	.05
	29K534326	LUG, term: dial & spkr leads	.05
	29C41506A01	LUG, term: fuse recept	.20
	33B41611B01	NAMEPLATE: "Eight Track Stereo" (A7MVF, VS)	.50
	2S135435	NUT, hex: 1/4-20 (radio mtg-rear)	.03
	2S124821	NUT, hex: 1/2-28 (front radio mtg - A7MVF, VS)	.15
	2S129892	NUT, hex: 8-32 x 5/16 (spkr to plate - A7MVF, VG, VW)	.05
	2B43951A01	NUT, spring: #8-15 (rear spkr mtg - A7MVT)	.03
	*64C40611B01	PLATE, adaptor (A7MVF, VG)	.75
	64C41371B01	PLATE, spkr mtg (A7MVF, VG, VW)	2.85
	64D42417A03	PLATE, spkr mtg (A7MVT)	
	*52B40654B01	POINTER, dial	.50
	9A531066	RECEPTACLE, ant	.15
	*9C41095A27	RECEPTACLE, fuse: incl fuse	1.00
	47A43513A02	ROD, cartridge door	.15
	*34B40603B01	SCALE, dial	.35
	3S122021	SCREW, mach: 8-32 x 9/16 (spkr to plate - A7MVF, VG, VW)	.05
	3K560695	SCREW, spcl: trans mtg	.03
	3S127896	SCREW, tpg: #4-40 x 1/4 (cam assem mtg)	.03
	3B40410A07	SCREW, tpg: #8-15 x 1-1/4 (rear spkr mtg - A7MVT)	.10
	9K562925	SOCKET, dial lite	.30
	9C43089A01	SOCKET, trans	.25
	*41A43588A01	SPRING, cartridge door	.15
	41A63638A01	SPRING, tension: pointer	.15
	*42K565373	STRAP, radio mtg (A7MVF, VG, VS, VW)	.30
	46K565358	STUD, trimount: trim cover	.10
	29D40600A02	TERMINAL, lug: spkr leads	.10
	29C40595A01	TERMINAL, male: 2-cond spkr leads (A7MVG, VS)	.10

INSTALLATION PARTS - MODEL A7MVF

Ref. No.	Part Number	Description	List Price
	*1V41500B09	RADIO INSTALLATION KIT	
	8B40353B01	CAPACITOR, generator	.80
	14A64196A01	INSULATOR, splice	.15
	29A42410A01	LUG, adaptor: dial light	.10
	2S410091	NUT, hex: 1/4-20	.05
	2A563491	NUT, hex; spcl: 1/4-20 (strap to radio mtg	.03
	2S131997	NUT, keps: 10-24 x 3/8	.05
	*3S122358	SCREW, mach: 1/4-20 x 3/8	
	*3S1940	SCREW, mach: 10-24 x 1/2	.03
	*3S125452	SCREW, tpg: #8-15 x 1/2 (front spkr mtg)	
	3S135712	SCREW, tpg: #8-32 x 1/4 (brkt to radio mtg)	.05
	3S135757	SCREW, tpg: #10-12 x 1/2 (brkt to dash mtg)	.03
	3S135147	SCREW, tpg: #10-12 x 1/2 (strap mtg)	.03
	3S135175	SCREW, tpg: #10-12 x 3/4 (brkt mtg)	.05
	41B42528A01	SPRING, static coil	.40
	29A64295A01	TERMINAL; female: splice	.05

INSTALLATION PARTS - MODEL A7MVG

Ref. No.	Part Number	Description	List Price
	*1V41300B79	RADIO INSTALLATION KIT	
	8B40353B01	CAPACITOR, generator	.80
	5S10115A10	GROMMET, insul: spkr leads	.10
	14A64196A01	INSULATOR, splice	.15
	36C40039B01	KNOB, tone-bal	.35
	36B40252B01	KNOB, vol-tuning-indexing	.40
	29A42410A01	LUG, adaptor: dial lite	.10
	2S124821	NUT, hex: 1/2-28 (front radio mtg)	.15
	2A563491	NUT, hex; spcl: 1/4-20 (strap to radio mtg)	.03
	3S125452	SCREW, tpg: #8-15 x 1/2 (front spkr mtg)	
	3S135147	SCREW, tpg: #10-12 x 1/2 (strap mtg)	.03
	3S135175	SCREW, tpg: #10-12 x 3/4 (brkt mtg)	.05
	41B42528A01	SPRING, static coil	.40
	29A64295A01	TERMINAL, female: splice	.05

INSTALLATION PARTS - MODEL A7MVS

Ref. No.	Part Number	Description	List Price
	*1V41500B10	RADIO INSTALLATION KIT	
	8B40353B01	CAPACITOR, generator	.80
	14A64196A01	INSULATOR, splice	.15
	29A42410A01	LUG, adaptor: dial lite	.10
	2S410091	NUT, hex: 1/4-20	.05
	2A563491	NUT, hex; spcl: 1/4-20 (strap to radio mtg)	.03
	2S131997	NUT, keps: 10-24 x 3/8	.05
	2B43951A01	NUT, spring: #8-15 (rear spkr mtg)	.03
	3S122358	SCREW, mach: 1/4-20 x 3/8	
	3S1940	SCREW, mach: #10-24 x 1/2	.03
	3S125452	SCREW, tpg: #8-15 x 1/2 (front spkr mtg)	
	3B40410A07	SCREW, tpg: #8-15 x 1-1/4 (rear spkr mtg)	.10
	3S135712	SCREW, tpg: #8-32 x 1/4 (brkt to radio mtg)	.05
	3S135757	SCREW, tpg: #10-12 x 1/2 (brkt to dash mtg)	.03
	3S135147	SCREW, tpg: #10-12 x 1/2 (strap mtg)	.03
	3S135175	SCREW, tpg: #10-12 x 3/4 (brkt mtg)	.05
	41B42528A01	SPRING, static coil	.40

INSTALLATION PARTS - MODEL A7MVT

Ref. No.	Part Number	Description	List Price
	*1V41500B12	RADIO INSTALLATION KIT	
	8B40353B01	CAPACITOR, generator	.80
	5S10115A10	GROMMET, insul: spkr leads	.10
	14A64196A01	INSULATOR, splice	.15
	36C40039B01	KNOB, tone-bal	.35
	36B40252B01	KNOB, vol-tuning-indexing	.40
	29A42410A01	LUG, adaptor: dial light	.10
	2S124821	NUT, hex: 1/2-28 (front radio mtg)	.15
	2A563491	NUT, hex; spcl: 1/4-20 (strap to radio mtg)	.03
	2S410091	NUT, kepts: 1/4-20 (strap mtg)	.05

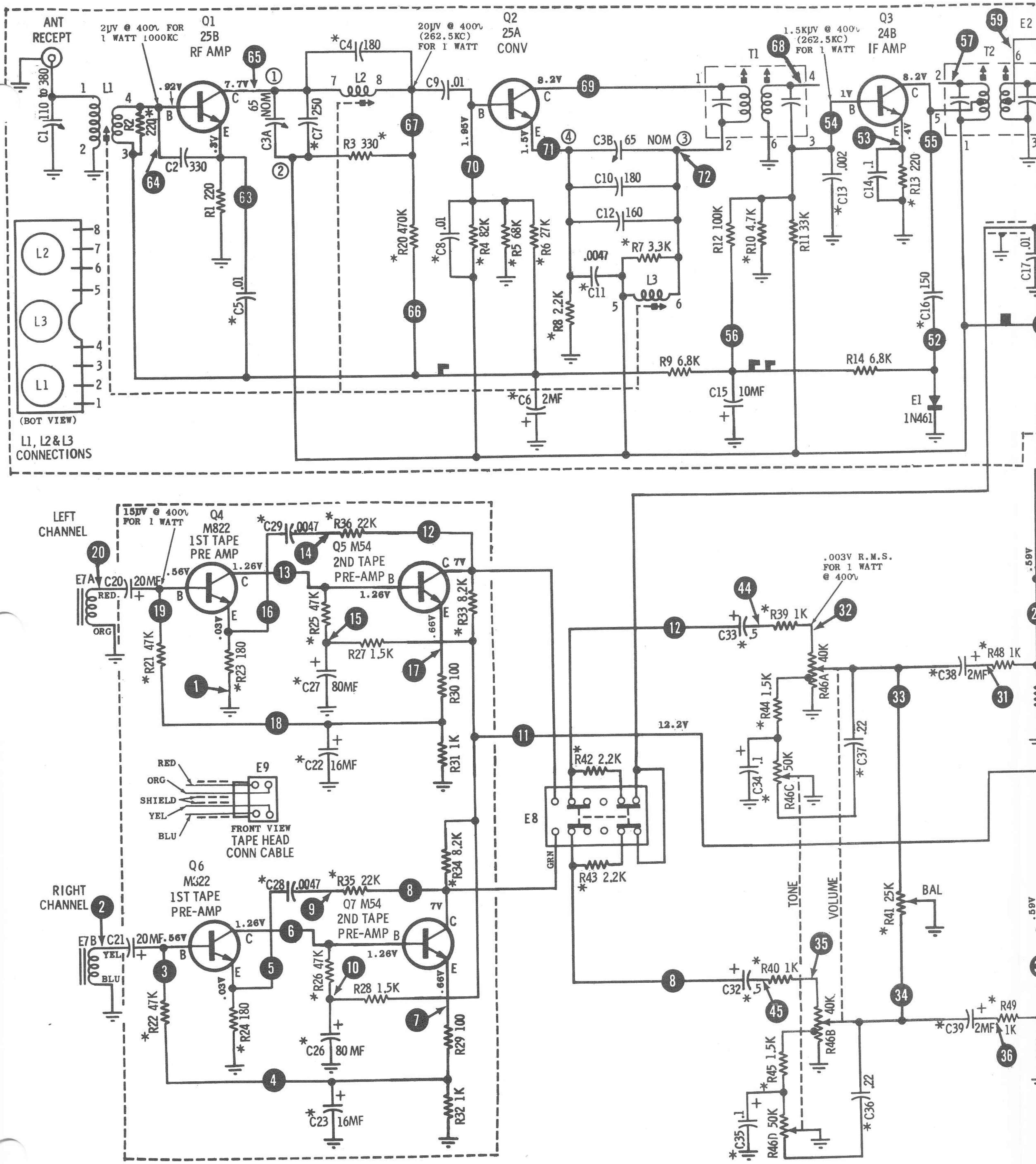
Ref. No.	Part Number	Description	List Price
	2B43951A01	NUT, spring: #8-15 (rear spkr mtg)	.03
	3S122358	SCREW, mach: 1/4-20 x 3/8	
	*3S125886	SCREW, tpg: #8-15 x 5/8; S L XHD	
	3S134015	SCREW, tpg: #8-15 x 5/8; PL X-W	.05
	3S125452	SCREW, tpg: #8-15 x 1/2 (front spkr mtg)	
	3B40410A07	SCREW, tpg: #8-15 x 1-1/4 (rear spkr mtg)	.10
	3S134145	SCREW, tpg: #10-12 x 3/8; PHL PAN	
	3S135147	SCREW, tpg: #10-12 x 1/2 (front spkr mtg)	.03
	3S135175	SCREW, tpg: #10-12 x 3/4 (brkt mtg)	.05
	41B42528A01	SPRING, static coil	.40
	*42K565383	STRAP, radio mtg	.25
	29A64295A01	TERMINAL, female: splice	.05
		INSTALLATION PARTS - MODEL A7MVW	
	*1V40800B18	RADIO INSTALLATION KIT	
	8B40353B01	CAPACITOR, generator	.80
	5S10115A10	GROMMET, insul: spkr leads	.10
	36C40039B01	KNOB, tone-bal	.35
	36B41423B01	KNOB, vol-tuning-indexing	.50
	14A64196A01	INSULATOR, splice	.15
	29A42410A01	LUG, adaptor: dial lite	.10
	2S124821	NUT, hex: 1/2-28 (radio mtg)	.15
	2A563491	NUT, hex; spcl: 1/4-20 (strap mtg)	.03
	3S135147	SCREW, tpg: #10-12 x 1/2 (front spkr mtg)	.03
	3S135175	SCREW, tpg: #10-12 x 3/4 (rear spkr mtg)	.05
	41B42528A01	SPRING, static coil	.40
	29A64295A01	TERMINAL, female: splice	.05
		TUNER PARTS - ALL MODELS	
	*1U43500A16	TUNER, MFT603: complete	12.75
	*1V40400B33	COILS & MTG PLATE ASSEM: incl L-1, L-2, L-3	3.35
	76C40706A10	CORE, tuning: ant & RF	.10
	76C40647A10	CORE, tuning: osc	.10
	5B562438	GROMMET, core mtg	.10
	*47B40665B01	SHAFT, tuning: incl ring & washers	1.00
	*41B40749B01	SPRING, shaft ret	.15
		TAPE DECK PARTS - ALL MODELS	
		ELECTRICAL PARTS	

CAPACITORS - NOTE: The capacitors in this list are recommended replacement types for the original equipment; all are ceramic disc type unless otherwise specified.

Ref. No.	Part Number	Description	List Price
C-20	23C41928A24	20 mf 16V lytic	.65
C-21	23C41928A24	20 mf 16V lytic	.65
C-22	23C41928A06	16 mf 16V lytic	.90
C-23	23C41928A06	16 mf 16V lytic	.90
C-26	23C41928A23	80 mf 16V lytic	.65
C-27	23C41928A23	80 mf 16V lytic	.65
C-28	8C42750A20	.0047 mf 10% 100V mylar (USE 8-40906A27)	.30
C-29	8C42750A20	.0047 mf 10% 100V mylar (USE 8-40906A27)	.30
C-51	8C40906A05	.1 mf 20% 100V mylar	.35
C-52	23S187A06	1000 mf 16V lytic	.65
MISCELLANEOUS ELECTRICAL PARTS			
E-3	59C43543A02	MOTOR, regulated DC	21.95
E-4	80B43685A01	SOLENOID	3.90
E-5	40B43677A01	SWITCH, micro	2.00
E-6	40B43642A01	SWITCH, leaf contact	1.20
E-7	1B43784A01	STEREO HEAD & BRACKET ASSEM (USE 59P40059A36)	13.25
E-8	---	SEE ELECTRICAL PARTS	
E-9	30C40643B02	CABLE, stereo head	1.35
E-13	48S41508A01	RECTIFIER, silicon	1.00

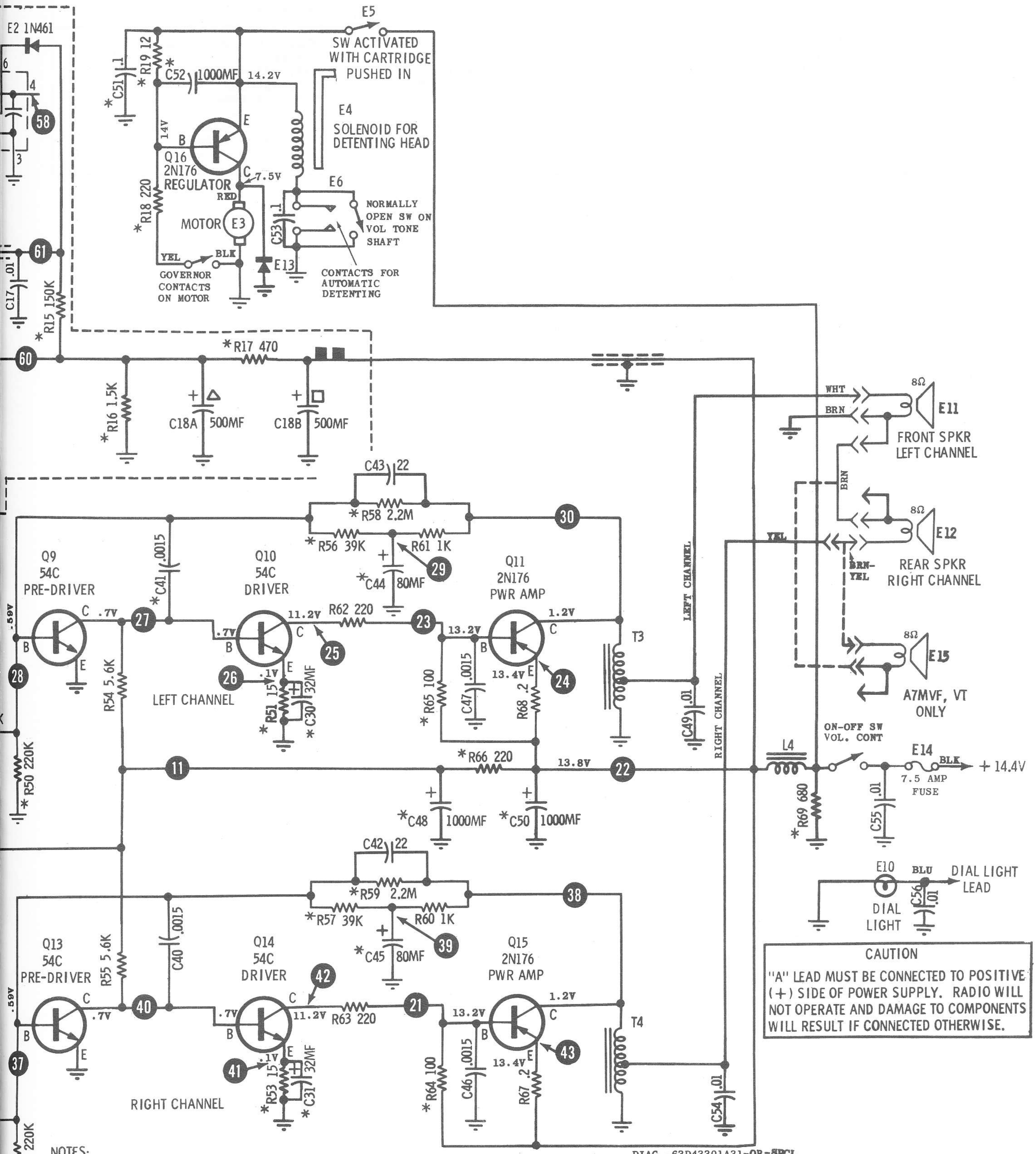
Ref. No.	Part Number	Description	List Price
RESISTORS			
R-18	6S127099	220 10% 1/2W	.17
R-19	6S128224	12 10% 1/2W	.17
R-21	6S128902	47K 10% 1/4W	.17
R-22	6S128902	47K 10% 1/4W	.17
R-23	6S129662	180 10% 1/4W	.17
R-24	6S129662	180 10% 1/4W	.17
R-25	6S128902	47K 10% 1/4W	.17
R-26	6S128902	47K 10% 1/4W	.17
R-27	6S127513	1500 10% 1/2W	.17
R-28	6S127513	1500 10% 1/2W	.17
R-29	6S129753	100 10% 1/4W	.17
R-30	6S129753	100 10% 1/4W	.17
R-31	6S127802	1000 10% 1/4W	.17
R-32	6S127802	1000 10% 1/4W	.17
R-33	6S128686	8200 10% 1/4W	.17
R-34	6S128686	8200 10% 1/4W	.17
R-35	6S125568	22K 10% 1/2W	.17
R-36	6S125568	22K 10% 1/2W	.17
TRANSISTORS			
Q-4	48S134823	M822	1.50
Q-5	48S134665	M54 (USE 48S134846)	1.50
Q-6	48S134823	M822	1.50
Q-7	48S134665	M54 (USE 48S134846)	1.50
Q-16	48S134746	2N176 (USE 48S134747)	3.25
		TAPE DECK MECHANICAL PARTS	
1,3	7A43576A01	SUPPORT, motor: rubber	.15
2	---	SEE E-3 IN ELECTRICAL PARTS	
4	49B43791A01	FLYWHEEL & SHAFT ASSEM	9.25
5	43A43867A01	BEARING, nylon (flywheel & shaft)	.05
6	26A40607B01	RETAINER, actuating arm	.05
7	3S132645	SCREW, tpg: 4-40 x 7/32 (act arm ret)	.03
8,9	3S122820	SCREW, tpg: 4-40 x 5/8 (micro sw mtg)	.03
10	---	SEE E-5 IN ELECTRICAL PARTS	
11	45B40480B01	ARM, micro-switch actuating	.25
13,14	3K564805	SCREW, spcl: transistor mtg	.03
15	---	SEE Q-16 IN ELECTRICAL PARTS	
16	14A543810	INSULATOR, transistor	.10
19	9K561755	SOCKET, transistor	.25
21	22C42038A05	PIN, drive: cartridge roller	.05
22	49A41281B01	ROLLER, cartridge tension: metal	.20
23	22A43573A01	PIN, transfer: .288-.292	.55
25	41P40059A48	SPRING, ROLLER & PIN ASSEM: cartridge tension	
28	---	SEE E-4 IN ELECTRICAL PARTS	
32	84D43709A03	BOARD, plated chassis: pre-amp; less all components	1.75
37	41A43742A01	SPRING, plunger tension	.10
38	47P40059A24	PLUNGER, BRACKET & ACTUATOR ASSEM	3.00
39	45B43929A01	CAM & RATCHET ASSEM	1.95
40	43K471633	BEARING, ball: 3/32	.01
41	47A40181B01	PLUNGER, cam tension	.35
42	41A40180B01	SPRING	.05
53	49A43659A03	ROLLER, deck slide: plastic	.25
54	22B43667A03	PIN, spiral: deck slide roller	.05
58	15P40059A28	CAPSTAN HOUSING ASSEM	3.25
59	22C42038A02	PIN, flywheel retaining	.05
60	41B43609A03	SPRING, head bracket mtg	.25
62	3T43787A01	SCREW, spcl: 4-40 x 1/4 (height adjust)	.25
63	43K471633	BEARING, ball: 3/32"	.01
64	2S7041	NUT, hex: 2-56 x 3/16 (stereo head)	.03
65	7B43531A01	BRACKET, tape guide	.20
66	46B40913B01	STOP, tape: nylon; tape guide brkt	.40
67	---	SEE E-6 IN ELECTRICAL PARTS	
71	---	SEE E-7 IN ELECTRICAL PARTS	
71A	---	BRACKET, tape head mtg (part of 71)	
72	3S135441	SCREW, machine: 2-56 x 1/4 (head mtg)	.05
73	41A40180B01	SPRING	.05
75	3T43787A02	SCREW, special: 4-40 x 5/8 (azimuth adjust)	.85
76	43K471633	BEARING, ball: 3/32	.01
77	41B43778A01	SPRING, conical: head adjust screw	.10
78	3S6961	SCREW, mach: 4-40 x 3/4 (head tension adj)	.03

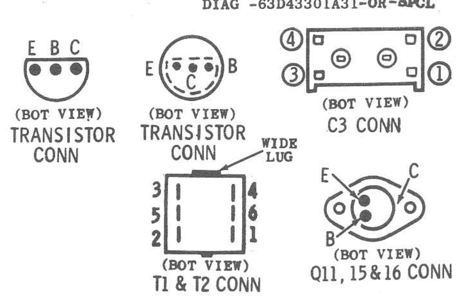
(Cont'd on Page 21)



PLATED BOARD WIRING LEGEND
▀▀, ▀ = B+ ▛ = RF AVC ▛▛ = IF AVC

SCHEMATIC DIAGRAM





NOTES:

CAPACITORS - UNLESS OTHERWISE SPECIFIED DECIMAL VALUES IN MF. ALL OTHERS IN MMF.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±10% NO SIGNAL INPUT.

*THE EXACT VALUE TO BE DETERMINED BY PRODUCTION PROCESS. REPLACE WITH THE SAME VALUE OF THE ORIGINAL PART.

TUNING RANGE - 530 TO 1610KC
INPUT VOLTAGE - 14.4V DC
IF FREQ - 262.5KC

Ref. No.	Part Number	Description	List Price
79	---	SEE E-9 IN ELECTRICAL PARTS	
81	26B43657A01	SHIELD, motor mtg..........	1.10
85	42B43871A01	BELT, drive...............	.75
		ACCESSORY SERVICE AIDS AND TOOLS	
	99P43309A01	CARTRIDGE, test tape.......	17.40
	68P40059A33	DISC, strobe (flywheel)....	
	*11P40059A53	GLYPTAL (for cementing adjustment screws)........	
	11M490487	GREASE, silicon............	2.30
	11P40059A55	GREASE, special, light-weight low-temperature type......................	
	66P40059A32	WRENCH, 1/16" allen head (for azimuth & height adjustment)...............	2.50

*DENOTES NEW ITEM APPEARING IN ANY LIST FOR FIRST TIME.